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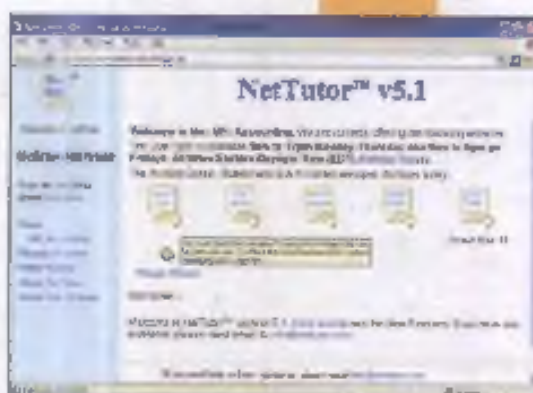


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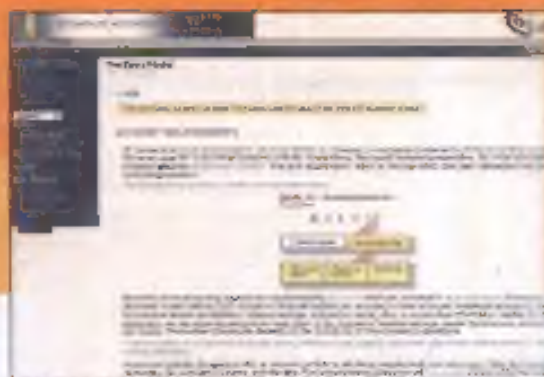
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McGraw-Hill's Homework Manager Plus combines the power of Homework Manager with the latest interactive learning technology to create a comprehensive, fully integrated online study package. Students working on assignments in Homework Manager can click a simple hotlink and instantly review the appropriate material in the Interactive Online Textbook. NetTutor rounds out the package by offering live tutoring with a qualified expert in the course material.

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- Aspen trees are grown in the fields of some large-scale timber companies in the north-western part of Myanmar. In such areas, much of the forest has been cleared to make way for the plantations. The forest that is left is usually of a degraded type, with a high proportion of pioneer species.

1. *Journal of the American Medical Association*, 1997; 277: 1039-1043.

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MANAGE YOUR CLASS.

Control how content is presented.

Homework Manager gives you a flexible and easy way to present course work to students. You determine which questions to ask and how much help students will receive as they work through assignments. You can determine the number of attempts a student can make with each problem or provide hints and feedback with each question. The questions can also be linked to an online version of the text for quick and simple reference while students complete an assignment.

The screenshot shows the 'New Assignment' interface with the following sections:

- General:** Includes tabs for 'New Assignment', 'Assignment Properties', 'Assignment Questions', and 'Assignment Feedback'.
- Assignment Properties:**
 - Type of Assignment:** Radio buttons for 'Homework', 'Quiz', 'Exam', and 'Practice'.
 - Homework:** Options for 'Number of attempts' (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Unlimited), 'Show hints' (Yes/No), 'Show feedback' (Yes/No), and 'Show solutions' (Yes/No).
 - Quiz:** Options for 'Number of attempts' (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Unlimited), 'Show hints' (Yes/No), 'Show feedback' (Yes/No), and 'Show solutions' (Yes/No).
 - Exam:** Options for 'Number of attempts' (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Unlimited), 'Show hints' (Yes/No), 'Show feedback' (Yes/No), and 'Show solutions' (Yes/No).
 - Practice:** Options for 'Number of attempts' (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, Unlimited), 'Show hints' (Yes/No), 'Show feedback' (Yes/No), and 'Show solutions' (Yes/No).
 - Assignment Questions:** A list of questions to be included in the assignment.
 - Assignment Feedback:** A section for providing feedback to students.
 - Assignment Properties:**
 - Number of attempts:** A dropdown menu.
 - Show hints:** A checkbox.
 - Show feedback:** A checkbox.
 - Show solutions:** A checkbox.

Track student progress.

Assignments are graded automatically, with the results stored in your private grade book. Detailed results let you see at a glance how each student does on an assignment or an individual problem. You can even see how many attempts it took them to solve it. You can monitor how the whole class does on each problem and even determine where individual students might need extra help.



PROFESSORS CAN ALLOW HOMEWORK MANAGER TO GIVE STUDENTS HELPFUL FEEDBACK

Auto-grading and feedback.

Question 3: Score 4.5/5

Exercise 2 is using four terms (LO1, LO2, LO3, LO4)

Following are a number of test items introduced in the chapter:

Market cost	Fixed cost
Variable cost	Direct cost
Opportunity cost	Overhead cost
Break-even point	Unit cost

Choose the test item or items above that most appropriately describe the costs identified in each of the following situations. A test item can be used more than once.

1. Creative Books, Inc., prints a book titled *The Future Leader*. The paper going into the manufacture of the book would be a **variable cost** and overhead is a **fixed cost**. In terms of cost behavior, the paper could also be described as a **direct cost**. **Overhead cost** with respect to the number of books printed.
2. Instead of supplying the books to the reader, the author hired by the company could have written a considerable time consulting with business organizations. The consulting time incurred by the author would be called **opportunity cost**.
3. The paper and other materials used in the manufacture of the book, combined with the direct labor cost, would be called **market cost**.
4. The salary of Creative Books' president would be classified as a **fixed cost**, and the salary will appear on the income statement as an expense in the time period in which it is incurred.
5. Depreciation on the equipment used to print the book would be classified by Creative Books as a **fixed cost**. However, depreciation on any equipment used by the company in selling and administering activities could be classified as a **period cost**. In terms of cost behavior, depreciation would probably be classified as a **fixed cost** with respect to the number of books printed.
6. A **period cost** could also be used to describe the cost.

Exercise 3 is using four terms (LO1, LO2, LO3, LO4)

Following are a number of test items introduced in the chapter:

Market cost	Fixed cost
Variable cost	Direct cost
Opportunity cost	Overhead cost
Break-even point	Unit cost

Choose the test item or items above that most appropriately describe the costs identified in each of the following situations. A test item can be used more than once.

1. Creative Books, Inc., prints a book titled *The Future Leader*. The paper going into the manufacture of the book would be called **direct material** and classified as a **variable cost**. In terms of cost behavior, the paper could also be described as a **direct cost** with respect to the number of books printed.
2. Instead of supplying the books to the reader, the author hired by the company could have instead a considerable time consulting with business organizations. The consulting time incurred by the author would be called **opportunity cost**.
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6. A **period cost** could also be used to describe the cost.

Immediately after finishing an assignment, students can compare their answers side-by-side with the detailed solutions. Students can try again with new numbers to see if they have mastered the concept.

Pauline Glave Accounting

Intermediate Accounting

Intermediate Accounting

REVISED FOURTH EDITION
With Revised Chapter 17 for SFAS 158

J. DAVID SPICELAND

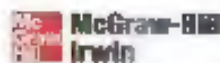
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INTERMEDIATE ACCOUNTING

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Dear and to
David's wife Charlene, daughters Denise and Jessica, and sons Michael David, Michael, and David
Jim's granddaughter Kaitlyn, and Father Anthony Sepe
Larry's wife and children: Eve Tomassini, Nicholas, Anthony, and Katherine

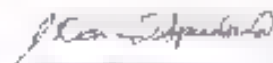
Dear Colleagues,

As we wrap up work on the fourth edition of *Intermediate Accounting*, we'd like to thank each of you who adopted the third edition and the updated third edition. Thanks to users like you, sales of our third edition doubled over the previous edition, and our McGraw-Hill colleagues recognized our success by voting our book Revision of the Year for the second time running. More than awards or sales figures, however, it's the positive response from so many of our fellow faculty that truly brand *Intermediate Accounting* a success. As intermediate accounting instructors, ourselves, we know how critical it is to choose the right textbook for your course and for your students. That's why, when we began work on the fourth edition, we wanted your input every step of the way.

Our partners at McGraw-Hill tell us they've rarely seen the kind of extraordinary feedback we received in preparing the fourth edition. More than 150 of you took the time to provide us with feedback on the book. Your suggestions were extremely valuable, but what struck us most was the tremendous enthusiasm of even the most critical review. Everyone, it seems, found something to like in *Intermediate Accounting*, as you'll see for yourself as you read this introductory preface. That enthusiasm doesn't stop with faculty; we received letters from students who, when their current books proved inadequate, brought *Intermediate Accounting* completely to their own initiative.

Our goal was to create the kind of textbook you would have written for your self to use, and we continue our commitment to provide you and your students with the most readable, accurate, and up-to-date intermediate text available. We also pledge to continue to write the major ancillary materials that accompany the text ourselves, including the website materials. Last, we will continue to listen to you, our colleagues, in developing our text to help provide your students with the knowledge, skills, and competencies to meet the challenges of our evolving accounting profession.

Sincerely,



David Sprafkin



James Sepe



Lawrence A. Tomuskini



Your Vehicle to Success



"I am very impressed with this textbook and its supplements. The authors have carefully developed the book to meet the needs of a wide range of student learners. It is clearly written in understandable terms. There are many features available to provide your students with the best chance to realize this potential."

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"It is a complete and unique learning system that reaches out to divergent learning styles of students. Realistic like, students learn something with this learning system."

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"Well on its way to becoming the standard."

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in Intermediate Accounting

Clarity

The book is written in a clear, concise, and easy-to-understand style. The author's writing is straightforward and to the point, making it easy for students to understand the concepts being discussed. The book is well-organized and easy to navigate, with clear headings and subheadings that help students find the information they need quickly and easily.

"This text shows tremendous promise in getting the student to actually read the book. The Spiceland text is so interesting, they might not even realize they are learning."

Agustinus

The book is written in a clear, concise, and easy-to-understand style. The author's writing is straightforward and to the point, making it easy for students to understand the concepts being discussed. The book is well-organized and easy to navigate, with clear headings and subheadings that help students find the information they need quickly and easily.

"There are a number of computerized/web-based supplements to assist students along with a plethora of terrific examples in the chapters and within the end of chapter material."

Ande Smith of
Arkansas State University

The book is written in a clear, concise, and easy-to-understand style. The author's writing is straightforward and to the point, making it easy for students to understand the concepts being discussed. The book is well-organized and easy to navigate, with clear headings and subheadings that help students find the information they need quickly and easily.

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"This is one of the few texts that I am aware of that the authors actually are responsible for the problems. This adds so much consistency and continuity."

Ande Shadenre
University of North Carolina

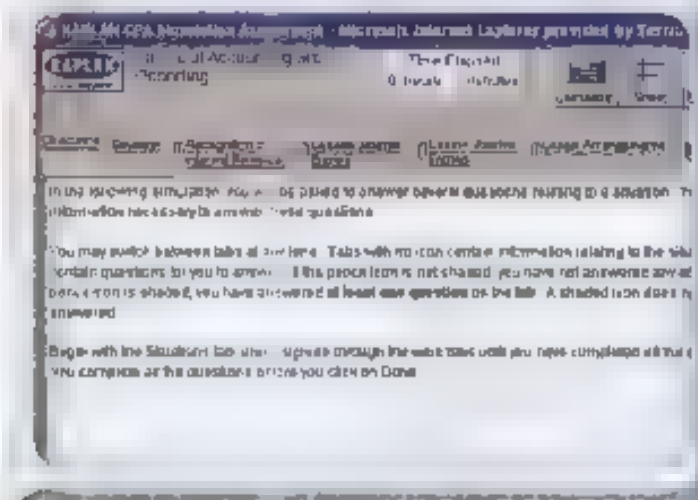
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"Overall, find the Spiceland end-of-chapter material far superior to that in class in terms of quality, especially as it relates to the diversity of the problem material."

Cheryl King
University of North Carolina

The book is written in a clear, concise, and easy-to-understand style. The author's writing is straightforward and to the point, making it easy for students to understand the concepts being discussed. The book is well-organized and easy to navigate, with clear headings and subheadings that help students find the information they need quickly and easily.

What Stands Out in the Fourth Edition?



"Extensive material is available to work through these. Students should find them as broadly available, especially if they plan to sit for the CPA exam."

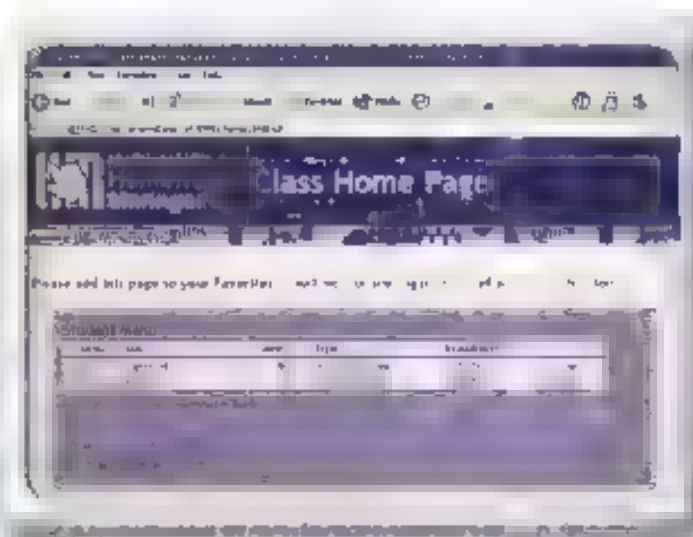
—James H. Hines, University of Texas at Dallas

CPA Simulations

Another striking feature of the new CPA Review is the extensive use of simulations. These simulations are designed to be as realistic as possible, allowing students to practice the skills they will need on the CPA exam. The simulations are available in a variety of formats, including interactive exercises, case studies, and problem sets. The new CPA Review also includes a comprehensive set of practice questions and answers, as well as a detailed explanation of the CPA exam process. The new CPA Review is a comprehensive resource for students preparing for the CPA exam.

KAPLAN
CPA Review

Revising a book as successful as *Intermediate Accounting* takes judiciousness and a strong vision of what a textbook should be. New features aren't piled on for their own sake; only when our users consistently point out an opportunity for improvement does the Spiceland team take action. The result is a book that never loses its original strengths as it gains in usefulness and flexibility with each revision.



McGraw-Hill's Homework Manager™

McGraw-Hill's Homework Manager is a web-based supplement to your textbook and an ideal assignment tool for students. Available online, it allows students to access assignments, view solutions, and track their progress. The self-paced interface is designed to help students learn at their own pace. A secure login system is provided for each student, and a secure environment is maintained for all assignments. Students can view their assignments, download assignments, and view solutions. Students can also view their progress and track their progress. Students can use McGraw-Hill's Homework Manager to view their progress and track their progress. Students can use McGraw-Hill's Homework Manager to view their progress and track their progress.

"I believe *Class and Homework Manager* are tremendous assets for my students."

Robert J. Spiceland
Northern Illinois University

How did we build a better book?

BRIEF EXERCISES

10. The first two columns of the matrix are the same as the first two columns of the matrix in the previous problem. The third column is the sum of the first two columns. The fourth column is the sum of the first three columns. The fifth column is the sum of the first four columns. The sixth column is the sum of the first five columns. The seventh column is the sum of the first six columns. The eighth column is the sum of the first seven columns. The ninth column is the sum of the first eight columns. The tenth column is the sum of the first nine columns. The eleventh column is the sum of the first ten columns. The twelfth column is the sum of the first eleven columns. The thirteenth column is the sum of the first twelve columns. The fourteenth column is the sum of the first thirteen columns. The fifteenth column is the sum of the first fourteen columns. The sixteenth column is the sum of the first fifteen columns. The seventeenth column is the sum of the first sixteen columns. 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"I worry much like the distinction between brief ascriptions and ascriptions. I usually have to hand her brief ascriptions down the road and use quickly in class and I can't find them for some topics. In my opinion, they are a great setting point for your text."

DATE RECEIVED: 11/28/2011
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Brief Exercises

A number of questions highlight the new role of environmental protection in the world. The world must deal with the effects of the greenhouse effect on the climate, the depletion of natural resources, the growing complexity of the environment, and the need for a new approach to the management of the environment.

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To assess the effect of the

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CMA Exam Questions

For example, our results on the effect of the price index suggest that the impact of the price index on the demand for the product is positive. This is consistent with the findings of the literature on the effect of the price index on the demand for the product.

• It seems in those chapters that have
 it all the only one the same situation
 a more than a view of the alternative
 of the world.

There's more to making a book better than adding new features. Organizing and updating the content is one of the foremost challenges a textbook does, and *Intermediate Accounting* undergoes continual refinement to ensure that the content is as fresh and as easy to present and teach as possible.

New Content Organization

A great many events have impacted accounting over the past few years and *Intermediate Accounting* has done every important development its where it belongs. Some examples follow.

- Expanded coverage of Sarbanes-Oxley in Chapter 7, with additional coverage of SOX Section 404 in the internal controls coverage of Chapter 8.
- The use view of the statement of cash flows has been expanded in Chapter 4.
- Chapter 10 has been rewritten to accommodate FASB Statement No. 163, "Exchanges of Nonmonetary Assets—An Amendment of APB Opinion No. 29."
- The previous Chapter 18, "Employee Benefit Plans," has been eliminated and is now integrated with "Pensions" in Chapter 19, and a major impetus for the change is SFAS 123 revised, "Share-Based Payment."
- Chapter 17, dealing with the financial statement chapters, has been revised and now includes in the new changes in the way we report changes in accounting principles.
- The full financial statement of equity prominently in many of the new sections, and now includes the new equity section, which makes them their own approach to the task of making them more successful.
- A chapter on present value, the Present Value Tables, are moved to the back, and this makes the chapter in student and instructor quickly find, regardless of which *Intermediate Accounting* organization they are using.

For more details on the fourth edition's organization, see pages 1-10 of the Preface.

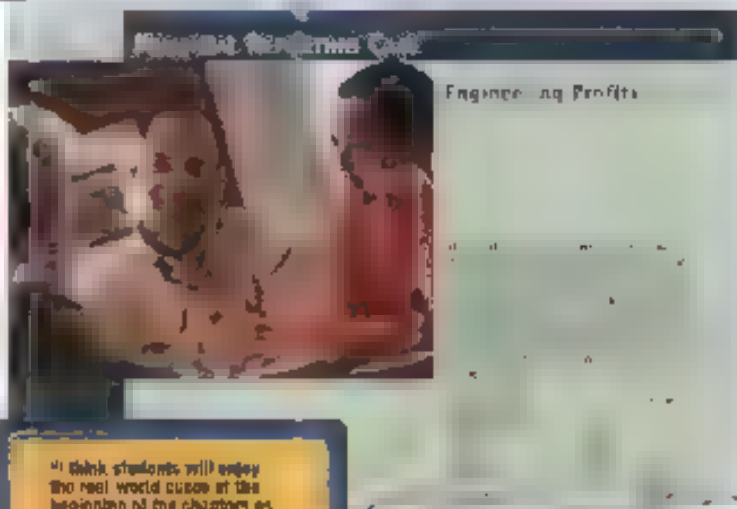
"Of the chapters I reviewed, SST was equal or superior to the Kieso text. Had I done a review this thorough before our text textbook adoption decision, I would have recommended SST over Kieso. The organization and writing style is exceptional."

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University of South Carolina

Financial Reporting Cases

[illegible][illegible][illegible]

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"Very clearly lays out the issues, explaining all ramifications. Doesn't assume that [students] are bringing any knowledge to the table."

2007-05-27 10:18:17
 2007-05-27 10:18:17

"I think that this classroom, and others like it in the past, is excellent. Being a former CPO, I spend a fair amount of time talking with students about their experiences and the consequences. In the future of a national curriculum, I think -"

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Engage in Profit

DECISION MADE BY: PRESIDENT/CEO

[illegible]

Earnings Quality

מדינת ישראל תהיה חברה מלאה בארגון המזרח התיכון, וכל המדינות המזרחיות יתאגדו בארגון זה. המדינות המזרחיות יתאגדו בארגון זה, וכל המדינות המזרחיות יתאגדו בארגון זה.

4-10. 2010. 10-10

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In talking to so many intermediate accounting faculty, we didn't hear only how to improve the book—there was much, much more that both users and nonusers insisted we keep exactly as it was. Here are some of the features that have made Spiceland such a phenomenal success in its previous editions.

ADDITIONAL CONSIDERATION

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[illegible]

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

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These tests students understand the development of reporting rules from accounts.

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Additional Consideration Boxes

There are, as the text itself
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Ethical Dilemmas

because ethnic examinations are a key selection mechanism for many individuals as well as the core of our economy. Elbert illustrates how ethnic groups within the United States are being used as a focal device for the construction of themselves as well as important and dangerous arguments.

Broaden Your Perspective Cases

most will prefer not these new
 original, more or less a good way
 to be done for papers, reports
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FILED RELEASE

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"In light of all the accounting

irregularities that have followed ethics have become a hot topic and certainly something that needs to be addressed by lawmakers."

And, the
theater

"In light of all the outstanding irregularities that have surfaced, ethics has become a hot topic and potentially something that needs to be addressed by Congress."

777. 114
 114. 777

BROADEN YOUR PERSPECTIVE

[illegible]

"I like the idea of having the separate block, and get a separate license. They are not just, myriarching laws and procedures."

2011年11月11日
 2011年11月11日
 2011年11月11日

"This is where Spiceland wants to be well ahead of our natural fuel."

የዲግሪው ስርዓት ማረጋገጫ

What's New in the Fourth Edition?

Chapter 1

ENVIRONMENT AND THEORETICAL STRUCTURE OF FINANCIAL ACCOUNTING

Chapter 1 has been revised throughout to reflect the changes in the environment of financial accounting. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 2

REVIEW OF THE ACCOUNTING PROCESS

Chapter 2 has been revised to reflect the changes in the accounting process. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 3

THE BALANCE SHEET AND FINANCIAL DISCLOSURES

Chapter 3 has been revised to reflect the changes in the balance sheet and financial disclosures. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 4

THE INCOME STATEMENT AND STATEMENT OF CASH FLOWS

Chapter 4 has been revised to reflect the changes in the income statement and statement of cash flows. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 5

INCOME MEASUREMENT AND PROFITABILITY ANALYSIS

Chapter 5 has been revised to reflect the changes in income measurement and profitability analysis. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 6

TIME VALUE OF MONEY CONCEPTS

Chapter 6 has been revised to reflect the changes in time value of money concepts. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 7

CASH AND RECEIVABLES

Chapter 7 has been revised to reflect the changes in cash and receivables. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 8

INVENTORY MEASUREMENT

Chapter 8 has been revised to reflect the changes in inventory measurement. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 9

INVENTORIES AND OTHER ISSUES

Chapter 9 has been revised to reflect the changes in inventories and other issues. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 10

DEPRECIATION AND AMORTIZATION

Chapter 10 has been revised to reflect the changes in depreciation and amortization. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 11

PROPERTY, PLANT, AND EQUIPMENT

Chapter 11 has been revised to reflect the changes in property, plant, and equipment. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 12

INTANGIBLE ASSETS

Chapter 12 has been revised to reflect the changes in intangible assets. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 13

LIABILITIES

Chapter 13 has been revised to reflect the changes in liabilities. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 14

EQUITY

Chapter 14 has been revised to reflect the changes in equity. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 15

FINANCIAL STATEMENTS

Chapter 15 has been revised to reflect the changes in financial statements. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

Chapter 16

FINANCIAL STATEMENTS

Chapter 16 has been revised to reflect the changes in financial statements. The chapter now includes a new section on the role of financial accounting in the business system, a new section on the role of financial accounting in the financial system, and a new section on the role of financial accounting in the legal system.

We received an unprecedented amount of feedback prior to writing the fourth edition of *Intermediate Accounting*. The following list of changes and improvements is a testament to our users and their commitment to making *Intermediate Accounting* the best book of its kind.

Chapter

13

CURRENT LIABILITIES AND CONTINGENCIES

Revised chapter on current liabilities and contingencies, including new material on the treatment of contingent liabilities and the treatment of current liabilities in the statement of financial position.

Chapter

14

BONDS AND LONG-TERM NOTES

Revised chapter on bonds and long-term notes, including new material on the treatment of bonds in the statement of financial position and the treatment of long-term notes in the statement of financial position.

Chapter

15

LEASES

Revised chapter on leases, including new material on the treatment of leases in the statement of financial position and the treatment of leases in the statement of financial position.

Chapter

16

ACCOUNTING FOR DEFERRED TAXES

Revised chapter on accounting for deferred taxes, including new material on the treatment of deferred taxes in the statement of financial position and the treatment of deferred taxes in the statement of financial position.

Chapter

17

PENSIONS AND OTHER POSTRETIREMENT BENEFITS

Revised chapter on pensions and other postretirement benefits, including new material on the treatment of pensions in the statement of financial position and the treatment of other postretirement benefits in the statement of financial position.

Chapter

18

INVESTMENTS

Revised chapter on investments, including new material on the treatment of investments in the statement of financial position and the treatment of investments in the statement of financial position.

Chapter

19

PROPERTY, PLANT, AND EQUIPMENT

Revised chapter on property, plant, and equipment, including new material on the treatment of property, plant, and equipment in the statement of financial position and the treatment of property, plant, and equipment in the statement of financial position.

Chapter

19

PROPERTY, PLANT, AND EQUIPMENT

Revised chapter on property, plant, and equipment, including new material on the treatment of property, plant, and equipment in the statement of financial position and the treatment of property, plant, and equipment in the statement of financial position.

Chapter

20

CHAPTER 20: ACCOUNTING CHANGES AND ERROR CORRECTIONS

Revised chapter on accounting changes and error corrections, including new material on the treatment of accounting changes in the statement of financial position and the treatment of error corrections in the statement of financial position.

Chapter

21

CHAPTER 21: THE STATEMENT OF CASH FLOWS

Revised chapter on the statement of cash flows, including new material on the treatment of cash flows in the statement of financial position and the treatment of cash flows in the statement of financial position.

APPENDIX A—DERIVATIVES

APPENDIX B—FARER'S FINANCIAL STATEMENTS

"If you had organized these any other way, probably would have suggested exactly the changes that you made."

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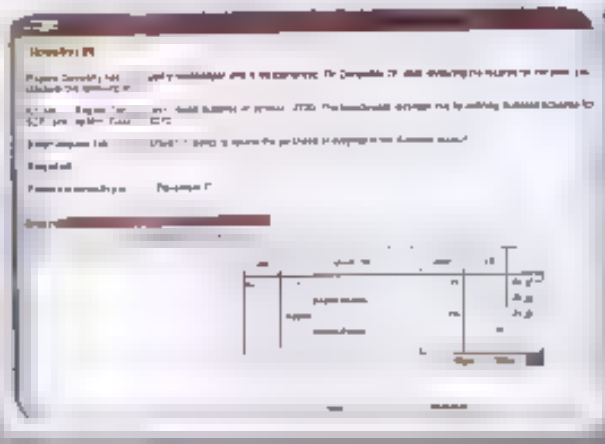


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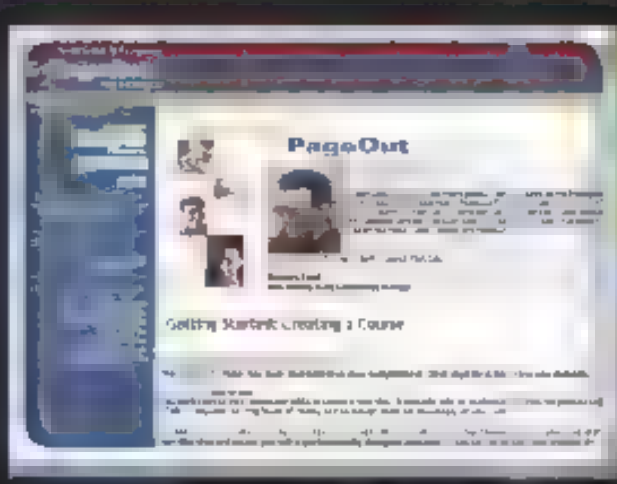
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As you know if you've read this for Intermediate Accounting would not be what it is without the passionate feedback of our colleagues. Through your time and effort we were able to create a learning system that truly responds to the needs of the market, and for that we sincerely thank each of you.

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Fourth Edition Reviewers' Conference Attendees

Reformers in Beijing have long argued that the government's failure to reform with confidence was due to its inability to implement the economic and legal reforms in the countryside. For reformers, the government's failure to reform was not only due to its inability to implement the economic and legal reforms in the countryside, but also due to its failure to reform the government itself. The government's failure to reform the government itself was due to its failure to reform the government itself.

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**Previous Edition Reviewers
and Focus Group Attendees**

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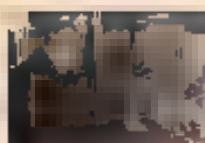
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Financial Instruments and Liabilities



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Intermediate Accounting



The Role of Accounting as an Information System

1

SECTION

1

CHAPTER

Environment and Theoretical Structure of Financial Accounting

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Describe the function and primary focus of financial accounting.
- LO2 Explain the difference between cash and accrual accounting.
- LO3 Define generally accepted accounting principles (GAAP) and discuss the historical development of accounting standards.
- LO4 Explain why the establishment of accounting standards is considered as a practical necessity.
- LO5 Explain the purpose of the FASB's conceptual framework.
- LO6 Identify the objectives of financial reporting, the qualitative characteristics of accounting information, and the elements of financial statements.
- LO7 Describe the four basic assumptions underlying GAAP.
- LO8 Describe the four broad accounting principles that guide accounting practice.

FINANCIAL REPORTING CASE



Misguided Marketing Major

During a class break in your investments class, a marketing major tells the following story to you and some friends:

The chief financial officer of a large company is interviewing three candidates for the top accounting position with his firm. He asks each the same question:

CFO:	What is two plus two?
First candidate:	Four
CFO:	What is two plus two?
Second candidate:	Four
CFO:	What is two plus two?
Third candidate:	What would you like it to be?
CFO:	You're hired!

After you take some good-natured ribbing from the marketing major, your friend says, "Seriously though, there must be ways the accounting profession prevents that kind of behavior. Aren't there some laws, or rules, or something? Are they based on some sort of theory, or are they just arbitrary?"

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case, and in your response to the assignment question at the end of this chapter.

QUESTIONS

1. What should you tell your friend about the presence of accounting standards in the United States? Who has the authority for standard setting? Who has the responsibility? (page 8)
2. What is the economic and political environment in which standard setting occurs? (page 2)
3. What is the relationship among management, auditors, investors, and regulators that leads to produce the "What would you like it to be?" attitude? (page 15)
4. In general, what is the conceptual framework underpinning accounting principles? (page 16)

PART A FINANCIAL ACCOUNTING ENVIRONMENT

Have you ever received a C grade in a paper and thought you deserved better? In 1965 Fred Smith did. His term paper for an economics class proposed a revolutionary air freight, deliv-ery method that revolved around a "hub and spokes" system. The hub would be located in a middle America location (Memphis was eventually chosen) with spokes radiating out to cities across the country. A package from Los Angeles, destined for New York, would be flown in on the Los Angeles spoke in a few hours to the hub location in Memphis. There it would be sorted and routed out on the return flight of the plane that had just brought in shipments from New York, arriving before dawn in Los Angeles to New York overnight.

Fred Smith had so much confidence in his idea that in 1971 he created a company called **Federal Express**. On April 17, 1973, when operations officially began, the company sorted 25 crates and delivered 186 packages. The company struggled at first, and it wasn't until three years later that it reported its first profit of \$3.6 million. A quarter of a century later, Federal Express Corporation's annual profit exceeded \$380 million and annual revenue topped \$19 billion. Average package volume reached approximately 3.2 million daily worldwide.

Many factors contributed to the success of Federal Express. The company's founder was a former termi-nal package clerk, so he knew the problems that were faced throughout the air freight industry. A key factor contributing to the growth and success of Federal Express was its access to external capital resources. At various times in the company's brief history the ability to raise external capital from investors and creditors was critical to its phenomenal growth. For example, several bank loans provided financing in the early years, and in 1978, an initial public offering of the company's stock provided over \$17 billion in equity financing.

Investors and creditors use many different kinds of information before supplying capital to business enterprises like Federal Express. The information is used to assess the future risk and return of their potential investments in the enterprise.² For example, information about the enterprise's products and its management is of vital importance to this assessment. In addition, various kinds of financial information are extremely important to investors and creditors.

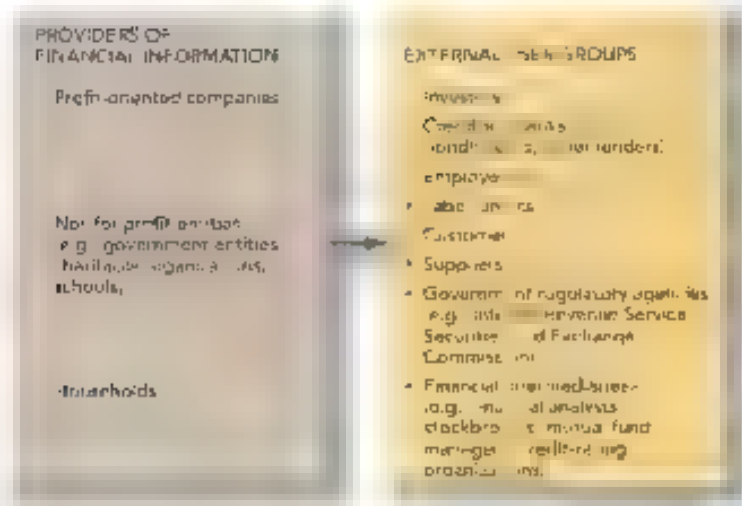
You might think of accounting as a special "language" used to communicate financial information about a business to those who wish to use the information to make decisions. This is a useful way to think about accounting, and it is closely related to providing financial information for various external users. The chart in Graphic 1-1 illustrates a number of financial information supplier groups as well as several external user groups. Of these groups, the primary focus of financial accounting is on the financial information provided by profit-oriented companies to their present and potential investors and creditors. The reason for this focus is discussed in a later section of this chapter. One external user group, often referred to as *financial intermediaries*, includes financial analysts, stockbrokers, mutual fund managers, and credit rating organizations. These users provide advice to investors and creditors and/or make investment-credit decisions on their behalf. The collapse of Enron Corporation in 2001 and other high-profile accounting fiascos made immensely clear the importance of reporting reliable financial information.

On the other hand, managerial accounting deals with the concepts and methods used to provide financial information to a company's managers. You study managerial accounting elsewhere in your curriculum.

The chart is a diagram showing the flow of financial information from a company to various external users. It includes a central box for the company and several boxes for external users, connected by arrows indicating the flow of information.

¹James Vanable, *Graphic Sources* (New York: Crown Publishers, Inc., 1979).

²What makes the valuation of financial information such an important return is the amount of interest over and above the investment and usually is expressed as a percentage.



GRAPHIC 1.1

Financial Information
Supplier Groups and
External User Groups

The primary means of conveying financial information to investors, creditors, and other external users is through financial statements and related disclosure notes. The financial statements most frequently provided are (1) the balance sheet or statement of financial position, (2) the income statement or statement of operations, (3) the statement of cash flows, and (4) the statement of shareholders' equity. As you progress through this text, you will review and expand your knowledge of the information in these financial statements, the way the elements in these statements are measured, and the concepts underlying these measurements and related disclosures. We use the term *financial reporting* to refer to the process of providing this information to external users. Keep in mind, though, that external users receive important financial information to a variety of other groups as well, including news releases and management analysts' reports used regularly by agencies, and the professional auditor.

Appendix B located at the back of this text contains recent financial statements, including related disclosure notes, for **FedEx Corporation**, now the parent company of Federal Express. We occasionally refer to the FedEx financial statements to illustrate certain points. You also can refer to these statements as new topics are introduced in later chapters.

Financial statements
are prepared by the
company and are
provided to external
users.

FedEx Corporation

The Economic Environment and Financial Reporting

In the United States, we have a highly developed free-enterprise economy with the majority of productive resources privately owned rather than government owned. It is important in this type of system that a mechanism exists to allocate the scarce resources of our society, both capital resources and labor, in an efficient manner. Resources should be allocated to private enterprises that will use them best to provide goods and services desired by society and not to enterprises that will waste them. The mechanisms that foster this efficient allocation of resources are the capital markets. We can think of the capital markets simply as a composite of all investors and creditors.

The three primary forms of business organization are the sole proprietorship, the partnership, and the corporation. In the United States, sole proprietorships and partnerships outnumber corporations. However, the dominant form of business organization, in terms of the ownership of productive resources, is the corporation. The corporate form makes it easier for an enterprise to acquire resources through the capital markets. Investors provide resources usually cash in a corporation in exchange for ownership interest, that is, shares of stock. Creditors such as banks lend cash to the corporation. Also, creditors can lend the corporation cash through the medium of bonds. Stocks and bonds usually are traded

The corporate form
of organization is
the dominant form
of business organization
in the United States.

The corporate form
of organization is
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of business organization
in the United States.

on organized security markets such as the New York Stock Exchange and the American Stock Exchange. The advantages and disadvantages of the corporate form are discussed at greater length in Chapter 18.

The transfers of these stocks and bonds among individuals and institutions are referred to as secondary market transactions. Corporations receive no new cash from secondary market transactions. New cash is provided in primary market transactions in which the shares or bonds are sold by the corporation to the initial owners. Nevertheless, secondary market transactions are essential to the success of the corporation. These transactions help establish market prices for additional shares and for bonds that corporations may wish to issue in the future to acquire additional capital. Also, many shareholders and bondholders might be unwilling to initially provide resources to corporations if there were no available mechanism for the future sale of their stocks and bonds to others.

What information do investors and creditors need to decide which companies will be provided capital? We explore that question next.

THE INVESTMENT-CREDIT DECISION—A CASH FLOW PERSPECTIVE

While the decisions made by investors and by creditors are somewhat different, they are similar in at least one important way. They both are concerned with providing resources to companies, usually cash, with the expectation of receiving more cash in return at some time in the future. A corporation's shareholders will receive cash from their investment through the ultimate sale of the ownership shares of stock. In addition, many corporations distribute cash to their shareholders in the form of periodic dividends. For example, if an investor provides a company with \$10,000 cash that is purchases ownership shares at the end of 2005, receives \$400 in dividends from the company during 2006, and sells the ownership interest (shares) at the end of 2006 for \$10,600 (\$600 share price appreciation), the investment would have generated a rate of return of 10% for 2006, calculated as follows:

$$\frac{\$400 \text{ dividends} + \$600 \text{ share price appreciation}}{\$10,000 \text{ initial investment}} = 10\%$$

Investors always are faced with more than one investment opportunity. There are many factors to consider before one of these opportunities is chosen. Two extremely important variables are the expected rate of return from each investment option, and the uncertainty of the return. The following two investment options:

1. Invest \$10,000 in a savings account insured by the U.S. government that will generate a 5% rate of return.
2. Invest \$10,000 in a profit-oriented company.

While the rate of return from option 1 is known with virtual certainty, the return from option 2 is uncertain. The amount and timing of the cash to be received in the future from option 2 are unknown. Investors require information about the company that will help them estimate the unknown return.

In the long run, a company will be able to provide investors with a return only if it can generate a profit. That is, it must be able to use the resources provided by investors and creditors to generate cash receipts from selling a product or service that exceeds the cash disbursements necessary to provide that product or service. If this excess can be generated, the marketplace is implicitly saying that society's resources have been efficiently allocated. The marketplace is assigning a value to the product or service that exceeds the value assigned to the resources used to produce that product or service.

In summary, the primary objective of financial accounting is to provide investors and creditors with information that will help them make investment and credit decisions. More specifically, the information should help investors and creditors evaluate the *amounts*, *timing*, and *uncertainty* of the enterprise's future cash receipts and disbursements. The better this information is, the more efficient will be investor and creditor resource allocation decisions. Financial accounting, in providing key elements of the information set used by capital market participants, plays a vital societal role in the resource allocation process. The importance of this role to society explains why the primary focus of financial accounting is on the information needs of investors and creditors.

Investors and creditors both are interested in earning a fair return on the resources provided.

The expected rate of return from each investment option, and the uncertainty of the return.

In the long run, a company will be able to provide investors with a return only if it can generate a profit.

The primary objective of financial accounting is to provide investors and creditors with information that will help them make investment and credit decisions.

The Financial Accounting Standards Board, the current private sector body responsible for setting accounting standards in the United States, has published a conceptual framework for financial reporting discussed later in this chapter. The first concept statement of the framework describes the specific objectives of external financial reporting. These objectives affirm the importance of the cash flow information needs of investors and creditors.

Throughout this text, you will be reminded of this cash flow perspective. For example, Chapter 4 describes certain events that are reported separately in the income statement due to the fact that these historical events have implications for future cash flows that are different from the normal operating activities. Separation of these events from normal operating activities provides financial statement users with information to more easily predict a company's future cash flows.

CASH VERSUS ACCRUAL ACCOUNTING

Even though predicting future cash flows is the primary objective, the model best able to achieve that objective is the accrual accounting model. A competing model is cash basis accounting. Each model produces a periodic measure of performance that could be used by investors and creditors for predicting future cash flows.

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Cash Basis Accounting. Cash basis accounting produces a measure called net operating cash flow. This measure is the difference between cash receipts and cash disbursements during a reporting period from transactions related to providing goods and services to customers.

Net operating cash flow is the difference between cash receipts and cash disbursements from providing goods and services.

Net operating cash flow is very easy to understand and all information required is available in fact. Also, it certainly relates to a variable of critical interest to investors and creditors. What could be better in helping to predict future cash flows from selling products and services than current cash flows from these activities? Remember, a company will be able to provide a return to investors and creditors only if it can use the capital provided to generate a positive net operating cash flow. However, there is a major drawback to using the current period's operating cash flow to predict future operating cash flows. Over the life of the company, net operating cash flow definitely is the variable of concern. However, over short periods of time, operating cash flows may not be indicative of the company's long-run cash-generating ability—that is, its ability to generate positive net operating cash flows in the future.

To demonstrate this, consider the following example: in Illustration 1-1 net operating cash flows are determined for the Carter Company during its first three years of operations.

Over the three-year period, Carter generated a positive net operating cash flow of \$60,000. At the end of this three-year period, Carter has no outstanding debts. Because total sales and cash receipts over the three-year period were each \$300,000, nothing is owed to Carter by customers. Also, in the beginning of the first year, Carter prepaid \$60,000 for three years' rent on the facilities. There are no uncompleted transactions at the end of the three-year period. In that sense, we can view this three-year period as a micro version of the entire life of a company.

	Year 1	Year 2	Year 3	Total	ILLUSTRATION 1-1 Cash Basis Accounting
Sales on credit	\$100,000	\$100,000	\$100,000	\$300,000	
Net Operating Cash Flows					
Cash receipts from customers	\$150,000	\$150,000	\$100,000	\$400,000	
Cash disbursements:					
Prepayment of three years' rent	(60,000)	—	—	(60,000)	
Salaries to employees	(50,000)	(50,000)	(50,000)	(150,000)	
Utilities	(10,000)	(10,000)	(10,000)	(30,000)	
Net operating cash flow	\$40,000	\$90,000	\$40,000	\$170,000	

The company incurred utility costs of \$10,000 per year over the period. However, during the first year, only \$5,000 actually was paid, with the remainder being paid the second year. Employee salary costs of \$50,000 were paid in full each year.

Is net operating cash flow a valid measure of the company's ability to generate future cash-generating ability? This is a valid predictor of the future net cash flows that occur in the next few years, as the three-year pattern of net operating cash flows indicates the company's year-by-year performance. But if we measure the same activity by the accrual accounting method, we get more accurate predictions of future operating cash flows and a more reasonable picture of the financial operating performance of the company over the three years.

Accrual Accounting. The accrual accounting method measures the company's accomplishments and resources at the end of each period, regardless of when cash is received or paid. The accrual accounting method measures the company's accomplishments as called *revenues* and the period's measure of resources as called *expenses*. The difference between revenues and expenses is net income. If revenues are greater than expenses, net income is positive; if expenses are greater than revenues, net income is negative.

How would we measure revenues and expenses in this very simplistic situation? Illustration 1-2 offers a possible solution.

ILLUSTRATION 1-2
Accrual Accounting

CAPTER COMPANY Income Statement				
	Year 1	Year 2	Year 3	Total
Revenues	\$ 30,000	\$ 60,000	\$ 10,000	\$300,000
Expenses:				
Rent	20,000	20,000	20,000	60,000
Salaries	50,000	50,000	50,000	150,000
Utilities	10,000	10,000	10,000	30,000
Total expenses	80,000	80,000	80,000	240,000
Net income	\$ 20,000	\$ 20,000	\$ 20,000	\$ 60,000

Net income of \$20,000 for year 1 is a reasonable predictor of the company's cash-generating ability as indicated by the three-year pattern of net operating cash flows in Illustration 1-1. After comparing the three-year pattern of net operating cash flows in Illustration 1-1 with the three-year pattern of net income in Illustration 1-2, the net income pattern is more representative of the steady operating performance over the three-year period.

While this example is somewhat simplified, it illustrates the basic principle of accrual accounting: the measurement of the company's accomplishments and resources during the year. For example, revenue for year 1 is \$30,000 in cash. This is a measure of the company's accomplishments during year 1, but the \$50,000 cash collected from customers is not.

Does this mean that information about cash flows from operating activities is not useful? No, indeed, when combined with information about cash flows from investing and financing activities, this information provides a valuable input in decisions made by management. In fact, a disclosure of cash flows information is one of the basic financial statements.

Accrual Accounting. The accrual accounting method measures the company's accomplishments and resources at the end of each period, regardless of when cash is received or paid. The accrual accounting method measures the company's accomplishments as called *revenues* and the period's measure of resources as called *expenses*. The difference between revenues and expenses is net income. If revenues are greater than expenses, net income is positive; if expenses are greater than revenues, net income is negative.

The Development of Financial Accounting and Reporting Standards

Accrual accounting is the financial reporting model used by the majority of profit-oriented enterprises and by many not-for-profit companies. The fact that companies use the same model is important to financial statement users. Investors and creditors use financial information to make their resource allocation decisions. It's critical that they be able to compare financial information among companies. To facilitate these comparisons, financial accounting employs a body of standards known as generally accepted accounting principles, or GAAP. GAAP are the standards that companies should follow when measuring and reporting the information in their financial statements and related notes. The more important broad principles or standards are discussed in a subsequent section of this chapter and revisited throughout the text in the context of accounting applications for which they provide conceptual support.² More specific standards, such as how to measure and report a lease transaction, receive more

HISTORICAL PERSPECTIVE AND STANDARDS

Pressures on the accounting profession to establish uniform accounting standards began to surface after the stock market crash of 1929. Some feel that insufficient and misleading financial statement information led to inflated stock prices and that this contributed to the stock market crash and the subsequent depression.

The 1933 Securities Act and the 1934 Securities Exchange Act were designed to restore investor confidence. The 1933 act set forth accounting and disclosure requirements for initial offerings of securities (stocks and bonds). The 1934 act applies to secondary market transactions and mandates reporting requirements for companies whose securities are publicly traded on either organized stock exchanges or in over-the-counter markets.³ The 1934 act also created the Securities and Exchange Commission (SEC).

In the 1934 act, Congress gave the SEC both the power and responsibility for setting accounting and reporting standards for companies whose securities are publicly traded. However, the SEC, a government appointed body, has delegated the primary responsibility for setting accounting standards to the private sector.⁴ It is important to understand that the SEC delegates only the responsibility, not the authority, to set standards. The power still lies with the SEC. If the SEC does not agree with a particular standard issued by the private sector, it can force a change in the standard, but it has done so in the past.

The SEC does issue its own accounting standards in the form of *Financial Reporting Regulations* (FRRs), which regulate what must be reported by companies to the SEC itself. These standards usually agree with those previously issued by the private sector. To learn more about the SEC, consult its Internet site at: www.sec.gov.⁵

Early Standard Setting. The first private sector body to assume the task of setting accounting standards was the Committee on Accounting Procedure (CAP). The CAP was a committee of the American Institute of Accountants (AIA). The AIA, which was renamed the American Institute of Certified Public Accountants (AICPA) in 1957, is the national organization of professional public accountants. From 1918 to 1959 the CAP issued 51 *Accounting Research Bulletins* (ARBs) which dealt with specific accounting and reporting problems. No theoretical framework for financial accounting was established. This approach of dealing with individual issues without a framework led to stern criticism of the accounting profession.

In 1959 the Accounting Principles Board (APB) replaced the CAP. Members of the Board, consisting of 16 accountants, were selected from the Institute of Accountants.

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FINANCIAL REPORTING CASE

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The Accounting

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Accounting Principles Board Opinions (APBOs), various *Interpretations*, and four *Statements*. The *Opinions* also dealt with specific accounting and reporting problems. Many ARBs and APBOs have not been superseded and still represent authoritative GAAP.

The APB's main effort to establish a theoretical framework for financial accounting and reporting was APB Statement No. 4, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises." Unfortunately the effort was not successful.

The APB was composed of members of the accounting profession and was supported by their professional organization. Members participated in the activities of the board on a voluntary, part-time basis. The APB was criticized by industry and government for its inability to establish an underlying framework for financial accounting and reporting and for its inability to act quickly enough to keep up with financial reporting issues as they developed. Perhaps the most important flaw of the APB was a perceived lack of independence. Composed almost entirely of public accountants, the board was subject to the criticism that the clients of the represented public accounting firms were exerting self-interested pressure on the board and influencing their decisions. Other interest groups were underrepresented in the standard-setting process.

The FASB currently sets accounting standards.

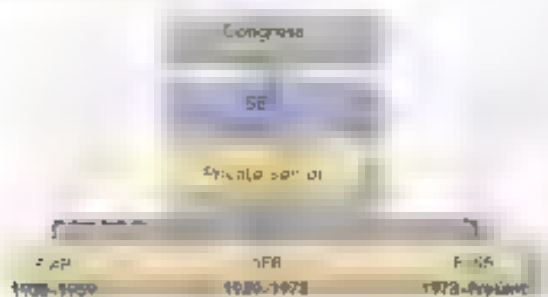
Current Standard Setting. Criticism of the APB led to the creation in 1973 of the Financial Accounting Standards Board (FASB) and its supporting structure. The FASB differs from its predecessor in many ways. There are seven full-time members of the FASB, compared to 18-21 part-time members of the APB. While all of the APB members belonged to the AICPA, FASB members represent various constituencies concerned with accounting standards. Members have included representatives from the accounting profession, profit and non-profit organizations, and government. The AICPA was particularly critical of the APB, while the FASB is supported by its parent organization, the Financial Accounting Foundation (FAF). The FAF is responsible for selecting the members of the FASB and an Advisory Council ensuring adequate funding of FASB activities, and exercising general oversight of the FASB's activities.⁴ The FASB is, therefore, an independent, private sector body whose members represent a broad constituency of interest groups.

In 1984 the FASB's Emerging Issues Task Force (EITF) was formed to provide more timely responses to emerging financial reporting issues. The EITF membership includes 5 individuals from public accounting and private industry, along with a representative from the FASB and an SSC observer. The membership of the task force is designed to include individuals who are in a position to be aware of emerging financial reporting issues. The task force meets frequently to discuss and attempt to reach consensus on new issues that are important for them. If consensus can be reached, generally no FASB action is required. The task force disseminates its rulings in the form of *EITF Issues*. These pronouncements are considered part of generally accepted accounting principles.

If a consensus can't be reached, FASB involvement may be necessary. The EITF plays an important role in the standard-setting process by identifying potential problem areas and then acting as a filter for the FASB. This speeds up the standard-setting process and allows the FASB to focus on pervasive long-term problems.

One of the FASB's most important activities has been the formulation of a conceptual framework. The conceptual framework project, discussed in more depth later in this chapter, deals with theoretical and conceptual issues and provides an underlying structure for current and future accounting and reporting standards. The FASB has issued seven *Statements of Financial Accounting Concepts* (SFACs) to describe its conceptual framework. The board also has issued over 150 specific accounting standards, called *Statements of Financial Accounting Standards* (SFASs), as well as numerous *FASB Interpretations and Technical Bulletins*.

GRAPHIC 1-2
Accounting Standard
Setting



In descending order of authority

- c. AICPA Accounting Research Bulletins and Accounting Principles Board Opinions are not superseded by either of the FASB FAS 4 Statements of Financial Standards and Interpretations, FASB Statement 13, Interpretation 1, and FASB Staff Position or other SEC rules, interpretive releases, and Staff Accounting Bulletins. SEC regulations.
- b. FASB Technical Bulletins and, if relevant, the FASB AICPA Industry Audit and Accounting Guides and Statements of Position. AICPA Accounting Standards Executive Committee. SEC Bulletins that have been cleared by the FASB and consensus positions of the FASB Emerging Issues Task Force.
- d. Implementation guides published by the FASB staff. ICPA accounting interpretations and practices that are widely recognized and prevalent either domestically or in the industry.

Graphic 2 summarizes the discussion on accounting standards. The top of the graphic shows the sources of accounting standards in order of authority. Congress gave the SEC the responsibility and authority to set accounting standards, specifically for companies whose securities are publicly traded. The SEC has delegated the task to various private sector bodies (currently the FASB), while retaining its legislated authority.

The lower portion of the graphic summarizes the framework for selecting the principles to be used in preparing financial statements in conformity with generally accepted accounting principles. The GAAP hierarchy includes the authoritative pronouncements and interpretations of the SEC, CAP, APB, and FASB, as well as AICPA industry guides, bulletins, and interpretations. The FASB recently decided to categorize these various sources in descending order to through d' of authority. Previously, this formalization of a hierarchy existed only in the auditing literature.³

ADDITIONAL CONSIDERATION

Accounting standards and the standard setting process discussed above relate to stan-
dards governing the measurement and reporting of in-
formation in profit oriented or-
ganizations. In 1951, the Government Accounting
Standards Board (GASB) was
created to develop accounting standards for gover-
nments. The GASB operates under the oversight of the F
and the Governmental Accounting Standards Advisory
Council.

discussed above relate to stan-
dards in profit-oriented or-
ganizations. Boer (1998) was
critical of such as states and
the Al Accounting Foundation
and:

THE ESTABLISHMENT OF ACCOUNTING STANDARDS— A POLITICAL PROCESS

The setting of accounting standards often has been characterized as a political process. The process of setting standards is a political one because it involves the weighing of the interests of various groups. The FASB must consider the interests of the public, the interests of the companies that will be affected by the standards, and the interests of the accounting profession. The FASB must also consider the economic consequences of the standards. The FASB must weigh the costs and benefits of the standards to the various groups and to society as a whole.

The role of the FASB in setting accounting standards is a complex one. Sound accounting principles can provide significant guidance in determining the appropriate method to measure and report an economic transaction. However, the FASB must gauge the potential economic consequences of a change in a standard to the various interest groups as well as to society as a whole. One obvious desired consequence is that the new standard will provide a better set of information to external users and thus improve the resource allocation process.

An example of possible adverse economic consequences is the issue of accounting for postretirement employee health care benefits. Many corporations guarantee to pay the health care and life insurance costs of their employees after retirement. Traditionally, these companies accounted for these benefits as expenses in the period in which they made payments to or on behalf of retired employees. In 1987, the FASB proposed that these costs be accounted for by recognizing expenses over the period of employment rather than after retirement.

Companies feared that the new standard would seriously depress their annual income, and as a result, they would be forced to reduce their health care costs for retirees to soften the effect of the new standard. A survey of 942 large companies found that during the two years following the adoption of the new standard, 79% of the companies surveyed changed their retiree medical plans. Of those, 78% increased retirees' share of costs and 4% eliminated all coverage. A typical example is the telephone equipment company, which is a 40% participant with its union to pay health care benefits to retirees only up to a maximum fixed amount, as opposed to unlimited medical benefits offered by many companies. Of course, AT&T's decision to limit retiree medical benefits may have been purely a business decision unrelated to the new reporting requirements.¹⁵ Or the new accounting standard may have a more subtle effect. It may lead to the loss of health care benefits of the postretirement packages. This issue is covered in depth in Chapter 7.

Carl Landegger, chairman of The Black Clawson Company, expressed his fear of the new accounting standard in open hearings before the FASB in 1989. The FASB reacted to these fears by modifying their originally proposed accounting treatment to ease possible adverse economic consequences to current and future retirees covered by these postretirement health care plans. The resulting standard, *FAS 106 "Employers' Accounting for Postretirement Benefits Other Than Pensions,"* was issued in 1990.

Another example of the effect of economic consequences on standard setting is the highly controversial debate surrounding accounting for employee stock options. Employees often are given the option to buy shares of the company as part of their total compensation package. The accounting objective for any form of compensation is to report compensation expense during the period of service for which the compensation is given. At issue is the amount of compensation to be recognized as expense for stock options.

CARL LANDEGGER

Chairman of The Black Clawson Company, expressed his fear of the new accounting standard in open hearings before the FASB in 1989. The FASB reacted to these fears by modifying their originally proposed accounting treatment to ease possible adverse economic consequences to current and future retirees covered by these postretirement health care plans.

¹⁵ Rod Collington, "FASB Standards: A Series of Surprises for 400 Large Employers," *ENR Today* (November 8, 1991).

Historically, options have been measured at their intrinsic value, which is the simple difference between the market price of the shares and the option price at which they can be acquired. For instance, an option that permits an employee to buy \$500 stock for \$42 has an intrinsic value of \$8. The problem is that options for which the exercise price equals the market value of the underlying stock at the date of grant (which describes most plans) have no intrinsic value and thus result in zero compensation when measured this way, even though the fair value of the options can be quite substantial. To the FASB and many others, it seems counterintuitive to not record any compensation expense for arrangements that routinely provide a large part of the total compensation of executives.

In 1995, after lengthy debate, the FASB bowed to public pressure and consented to encourage, rather than require, companies to expense the fair value of employee stock options. Recently, nearly a decade later, the consensus view resurfaced, and the FASB issued an exposure draft requiring companies to measure options at their fair value and to expense that amount over an appropriate service period. This issue is discussed at greater length in Chapter 9.

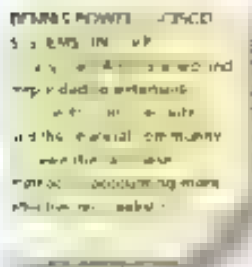
The most recent example of the political process at work in standard setting is the heated debate that occurred on the issue of accounting for business combinations. Back in 1996, the FASB added to its agenda a project to consider a possible revision in the practice of allowing two separate and distinct methods of accounting for business combinations, the pooling of interests method and the purchase method. A thorough explanation of the differences between these methods is beyond the scope of this text. For our discussion here, just note that a key issue in the debate relates to goodwill, an intangible asset that arises only in business combinations accounted for using the purchase method. Under the then-existing standards, goodwill, like any other intangible asset, was amortized (expensed) over its estimated useful life thus reducing reported net income for several years following the acquisition. It was that negative impact on earnings that motivated many companies involved in a business combination to favor the pooling method, its elimination to expense, and the resulting increase in earnings.

As you might guess, when the FASB initially proposed eliminating the pooling method, many companies that were actively engaged in business acquisitions vigorously opposed the elimination of this means of avoiding goodwill. To support their opposition these companies argued that if they were required to use purchase accounting, many business combinations important to economic growth would prove unattractive due to the negative impact on earnings caused by goodwill amortization and would not be undertaken.

To justify opposition to its proposal, the FASB suggested several modifications over the years, but it wasn't until the year 2000 that a satisfactory compromise was reached. Since then, the new accounting standard

issued in 2001¹⁴, only the purchase method is acceptable, but to soften the impact, the resulting goodwill is not amortized. We discuss goodwill and its measurement in Chapters 10 and 11.

The FASB's dilemma is to balance accounting considerations and political considerations resulting from perceived possible adverse economic consequences. To help solve this dilemma, the board undertakes a series of elaborate information-gathering steps before issuing a substantive accounting standard involving alternative accounting treatments for an economic transaction. These steps include open hearings, deliberations, and requests for written comments from interested parties. For example, 467 comment letters were received on the 1999 proposal concerning accounting for postretirement employee health care benefits. Graphic 1-3 outlines the FASB's standard-setting process.



1. Identify a problem or issue	2. Research and identify the problem	3. Develop a list of possible solutions	4. Discuss the problem and possible solutions with the public	5. Develop a proposed standard	6. Issue a standard
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GRAPHIC 1-3

The FASB's Standard-Setting Process

Step	Explanation
1. Identification of problem	a. An accounting reporting issue is identified by the Accounting Issues Task Force and placed on the FASB's agenda. b. The issue is an accounting issue that is knowledgeable for financial statement users because it affects or varies
2. Research	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
3. Research and analysis	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
4. Research and analysis	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
5. Public exposure	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
6. Exposure draft	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
7. Public response	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.
8. Final decision	a. The FASB staff researches the issue and identifies the accounting issue that is relevant to the issue.

These steps are the FASB's attempt to acquire consensus as to the preferred method of accounting, as well as to anticipate adverse economic consequences. The board's process is similar to that of an elected political representative, a U.S. congresswoman for example, trying to determine consensus among her constituency before voting on a bill on the floor of the House of Representatives. For this reason, accounting standard setting is a political process.

OUR GLOBAL MARKETPLACE

Advances in communication and transportation systems continue to expand the marketplace in which companies operate. The world economy is more integrated than ever, and many of the large U.S. corporations are truly multinational in nature. These multinational corporations have their home in the United States but operate and perhaps raise capital in other countries. For example, Coca-Cola, JetBlue, and many other companies generate more than 50% of their revenue from foreign sales. It is not uncommon for even relatively small companies to transact business in many different countries.

Of course, many foreign corporations operate in the United States as well. In fact, companies such as Columbia Records and Interstine Americas Holding are wholly owned companies that reside in other countries. The financial marketplace also has taken on a global dimension, with many companies crossing geographic boundaries to raise capital. For example, nearly 300 foreign companies are listed on the New York Stock Exchange and nearly 400 foreign companies are listed on the London Stock Exchange. This expanded marketplace requires that company management understand the laws, customs, regulations, and accounting and reporting standards of many different countries.

Toward Global Accounting Standards

Most industrialized countries have organizations responsible for determining accounting and reporting standards. In some countries, the United Kingdom for instance, the responsible organization is a private sector body similar to the FASB in the United States. In other countries, such as France, the organization is a governmental body.

Accounting standards prescribed by these various groups are not the same. Standards differ from country to country for many reasons, including different legal systems, levels of inflation, culture, degrees of sophistication and use of capital markets, and political and economic ties with other countries. These differences can cause problems for multinational corporations. A company doing business in more than one country may find it difficult to

Many U.S. and foreign companies are and raise capital from more than one country.



comply with more than one set of accounting standards if there are important differences among the sets. It has been argued that different national accounting standards impair the ability of investors to make rational investment decisions.

In response to this problem, the International Accounting Standards Board (IASB) organized itself and created a new standard-setting body called the **International Accounting Standards Board (IASB)**. The IASB now acts as an umbrella organization similar to the Financial Accounting Foundation (FAF) in the United States. This new global standard-setting structure is consistent with a recent FASB vision report attempting to identify an optimal standard-setting environment.¹⁹ The IASB's objectives are (1) to develop a single set of high quality, understandable global accounting standards, (2) to promote the use of those standards, and (3) to bring about the convergence of national accounting standards and international accounting standards.

The IASB issued 41 International Accounting Standards (IASs). The IASB endorsed these standards when it was formed in 2001. Since then, the IASB has revised many of them and has issued six standards of its own, called **International Financial Reporting Standards (IFRSs)**. Compliance with these standards is voluntary since the IASB has no authority to enforce them. However, more and more countries are having their national accounting standards or international accounting standards.²⁰ The International Organization of Securities Commissions (IOSCO) approved a resolution permitting its members to use these standards to prepare their financial statements for cross-border offerings and listings. Beginning in 2005, all listed companies in the European Union (EU) must prepare their consolidated financial statements using IFRS. Some 7,000 listed EU companies are affected.

In the United States, the move toward convergence of accounting standards began in earnest with the cooperation of the FASB and the IASB on the earnings per share (EPS), issue. In 1994, the FASB and the IASB began working on projects leading toward the issuance of new standards for the computation of EPS. The intent of the FASB's project was to issue an EPS standard that would be compatible with the new international standard and, at the same time, simplify U.S. GAAP. Chapter 19 describes this standard.

In 2002, the FASB and IASB signed the so-called **Norwalk Agreement**, formalizing their commitment to convergence of U.S. GAAP and IFRS. Under this agreement, the boards pledged to remove existing differences between their standards and to coordinate their future standard-setting agendas so that major issues are worked on together. Recent standards issued by the FASB that you will encounter in our later discussions on share-based compensation, monetary exchanges, and inventory costs are recent examples of this commitment.

Global Perspectives are included throughout the text to emphasize that our economy does not operate in isolation and to introduce you to some of the differences and similarities in accounting and reporting practices around the world. In addition, your instructor may assign end-of-chapter international cases to further explore these differences and similarities.

THE ROLE OF THE AUDITOR

It is the responsibility of management to apply accounting standards when communicating with investors and creditors through financial statements. Another group, **auditors**, serves as an independent intermediary to help ensure that management has in fact appropriately applied GAAP in preparing the company's financial statements. Auditors examine (audit) financial statements to express a professional, independent opinion. The opinion reflects the auditor's assessment of the statements' "fairness," which is determined by the extent to which they are prepared in compliance with GAAP.

The report of the independent auditors for **Peddie Corporation's** financial statements is in Appendix B. The first two paragraphs explain the scope of the audit, and the third states the auditors' opinion. After conducting its audit, the accounting firm **Erist & Young LLP** stated that "In our opinion, the financial statements referred to above present fairly, in conformity with U.S. generally accepted accounting principles." This is known as a **clean**

	U.S. GAAP	IFRS
Revenue Recognition	Yes	Yes
Inventory	Yes	Yes
Property, Plant, and Equipment	Yes	Yes
Goodwill	Yes	No
Research and Development	No	No

Reporting Standards are giving support around the globe.

	U.S. GAAP	IFRS
Revenue Recognition	Yes	Yes
Inventory	Yes	Yes
Property, Plant, and Equipment	Yes	Yes
Goodwill	Yes	No
Research and Development	No	No

Financial Reporting Case

The following case is based on the financial statements of Peddie Corporation. The case is designed to help you understand the role of the auditor in the financial reporting process.

Peddie Corporation

problem—these include potentially fraudulent entries from C & A or other problems that caused the auditors to question the fairness of the statements, the report would have been modified in a way that readers

The auditor adds credibility to the financial statements, increasing the confidence of capital markets participants with respect to the financial statements. Auditors, therefore, play an important role in the resource allocation process.

In most states, only individuals licensed as certified public accountants (CPAs) in the state can represent themselves as auditors. CPAs have been subjected to accounting with generally accepted auditing standards. Requirements to be licensed as a CPA vary from state to state, but all states specify education, testing, and experience requirements. The testing requirement is to pass the Uniform CPA Examination.

FINANCIAL REPORTING REFORM

The financial collapse that began in 2007 and the discrediting of the international public accounting firm of Arthur Andersen in 2002 severely shook U.S. capital markets. The credibility of the accounting profession itself as well as of corporate America was called into question. Public outrage over accounting scandals at high-profile companies like WorldCom, Xerox, Merck, Adelphia Communications, and others increased the pressure on lawmakers to pass measures that would restore credibility and investor confidence in the financial reporting process.

Driven by these pressures, Congress acted swiftly and passed the *Public Company Accounting Reform and Investor Protection Act* of 2002, commonly referred to as the *Sarbanes-Oxley Act* for the two congressmen who sponsored the bill. The legislation is comprehensive in its inclusion of the key players in the financial reporting process. The law provides for the regulation of auditors and the types of services they furnish to clients, increases accountability of corporate executives, addresses conflicts of interest for securities analysts, and provides for sufficient penalties for violators. Chapter 4 outlines the key provisions of the Act.

The changes approved by the legislature are dramatic in scope and will, as promised, challenge for the public accounting profession. At the same time, many maintain the changes were necessary to lessen the likelihood of corporate and accounting fraud and to restore investor confidence in the U.S. capital markets.

Section 404 is perhaps the most controversial provision of the 2002 act. No one argues the importance of adequate internal controls. However, the costs of implementing this section of the act can be substantial. Not only are companies required to document internal controls and assess their adequacy, but their auditors, too, must provide an opinion on management's assessment. The Public Company Accounting Oversight Board's (PCAOB) *Auditing Standard* No. 2 added an additional requirement that auditors express a second opinion on whether the company has maintained effective internal control over financial reporting.¹² We revisit Section 404 in Chapter 7 in the context of an introduction to internal controls.

PAUL SARBANES— U.S. SENATOR

We control an increasing crisis of confidence with the public's trust in our markets. If this continues, I think it poses a real threat to our economic health.

WILLIAM J. McDONOUGH— PCAOB CHAIRMAN

The standard Auditing Standard No. 2 is one of the most important and far-reaching auditing standards the board will ever adopt. In the past, internal controls were merely considered by auditors; now they will have to be expressly examined in detail, as quoted in PCAOB.org, June 19, 2004.

Sarbanes-Oxley

¹²James K. Hoffmeyer, "Bitter Views in Public Company Landscapes," *New York City News News* (July 9, 2002), p. B4.

Key Provisions of the Act

- **Oversight board** The board of directors has the authority to establish a separate audit committee, however, the committee must be independent of the company's management. The audit committee is responsible for overseeing the company's financial reporting process and for selecting and overseeing the external auditor.
- **Corporate executive responsibility** The CEO and CFO are responsible for the accuracy and integrity of the company's financial statements. They are also responsible for ensuring that the company's internal controls are effective.
- **Nonaudit services** The company's external auditor is prohibited from providing nonaudit services to the company or its subsidiaries. This includes services such as bookkeeping, tax preparation, and financial consulting.
- **Retention of work papers** The company is required to retain its audit work papers for a minimum of seven years. This is to ensure that the audit trail is available for review and investigation.
- **Auditor rotation** The company is required to rotate its external auditor every five years to prevent the auditor from becoming too familiar with the company's management.
- **Conflicts of interest** Audit firms are prohibited from providing nonaudit services to the company or its subsidiaries if the services are likely to impair the auditor's objectivity.
- **Hiring of auditors** The company's board of directors is responsible for hiring and firing the external auditor. The board must also ensure that the auditor is independent of the company's management.
- **Internal control** The company is required to establish and maintain an effective system of internal controls. This system should be designed to prevent and detect errors and fraud.

График 1-4

Public Company
Accounting Reform
and Investor Protection
Act of 2002

ROBERT H. HILL—CHAIRMAN

[illegible]

A MOVE AWAY FROM RULES-BASED STANDARDS?

The accounting scandals at Enron and other companies also rekindled the debate over principles-based, or more recently termed objectives-oriented, versus rules-based accounting standards. In fact, a provision of the Sarbanes-Oxley Act required the SEC to study the issue and provide a report to Congress on its findings. That report, issued in July 2003, recommended that accounting standards be developed using an objectives-oriented approach.²³ The FASB also issued a proposal addressing the issue.²⁴

An important element in a approach to standard setting stresses a high measure of alignment as opposed to following a list of rules when choosing the appropriate accounting treatment for a transaction. Lease accounting provides a useful example in comparing the two approaches. In Chapter 3 you will learn that a company records a long-term lease of an asset as either a *capital lease* or an *operating lease*. If a leasing arrangement is "in substance" the purchase of an asset with the lease-

A complete business
 development plan
 appears to be abundant
 on the Internet.
 But it is not. The only
 one I have seen is
 following a list of steps

¹ See, e.g., *Thompson v. Smith*, 134 F.3d 1011, 1014 (9th Cir. 1998) (quoting the Supreme Court's decision in *United States v. Best*, 462 U.S. 516, 520 (1983)).

[illegible]

payments effectively serving as payments for that purchase, we should account for the transaction that way. A capital lease requires that the property being leased be recorded as an asset and a liability to pay for the asset. No asset or liability is recorded for an operating lease. Therein lies the problem. Because company managers are aware that analysts view debt as indicative of financial risk, those managers often try to avoid reporting more debt than absolutely necessary. As a result, firms frequently stretch the limits of the rules to structure lease agreements so that they technically sidestep the FASB's detailed rules, principally four criteria provided in SFAS No. 73, for identifying capital leases that require recording a liability.

In contrast, the FASB employs an objectives-oriented approach to lease accounting in its SAS 17. In that standard, the focus is on professional judgment rather than specific rules to determine whether the leasing arrangement effectively transfers the "risk and rewards" of ownership. Professional judgment is then applied to determine if the risk and rewards have been transferred.

Which approach is more likely to capture the economic substance of the lease, rather than its form? The FASB's criteria were designed to aid the accountant in determining whether the risk and rewards of ownership have been transferred. Many would argue, though, that the result has been the opposite. Rather than use the criteria to enhance judgment, management and its accountants can use the rules as an excuse to avoid using professional judgment altogether and instead focus on the rules alone. Proponents of an objectives-oriented approach argue that its focus is squarely on professional judgment; there are few rules to sidestep, and we more likely will arrive at an appropriate accounting treatment. Detractors, on the other hand, argue that the absence of detailed rules opens the door to even more abuse. Even in the absence of intentional misuse, reliance on professional judgment could result in different interpretations for similar transactions, raising concerns about comparability.

The FASB is actively considering whether to move toward objectives-oriented standard setting. That the FASB is only now taking the objectives approach, despite with the FASB's recent moves toward convergence of U.S. and international standards, hints at a leaning in that direction. Opposition, though, is ardent. The debate has by no means ended.

PART B

THE CONCEPTUAL FRAMEWORK

The increasing complexity of our business world creates growing pressure on the FASB to delicately balance the many constituents of the accounting standard-setting process. The task of the FASB is made less complex if there exists a set of cohesive objectives and fundamental principles on which financial accounting and reporting can be based. A number of years after coming into existence in 1973, the FASB's efforts resulted in the establishment of these objectives and concepts.

The **conceptual framework** has been described as a constitution, a coherent system of interrelated objectives and fundamentals that can lead to consistent standards and that prescribe the nature, function, and limits of financial accounting and reporting. The fundamentals are the underlying concepts of accounting, concepts that guide the selection of events to be accounted for, the measurement of those events, and the means of summarizing and communicating them to interested parties.¹⁵

The FASB has disseminated this framework through seven Statements of Financial Accounting Concepts. SFAC #1 deals with the objectives of financial reporting for nonprofit organizations, and SFAC #3 was superseded by SFAC #6, which, with the other four statements, is dis-

FASB

The Concepts Statements we quote are heard in developing accounting standards by providing the background with a common foundation and basic building blocks to consider the alternatives."

FINANCIAL REPORTING CASE

14. p. 7

• LOS

The conceptual framework does not provide a set of accounting standards.

15. The FASB's *Concepts Statements* are the foundation for the development of accounting standards. The FASB's *Concepts Statements* are the foundation for the development of accounting standards. The FASB's *Concepts Statements* are the foundation for the development of accounting standards.



GRAPHIC 1-5
The Conceptual
Framework

outlined below. It is important to realize that the conceptual framework provides structure and direction in financial accounting and reporting, and does not directly prescribe GAAP.

The financial statements and their elements are most informative when they possess specific qualitative characteristics, subject to the constraints of materiality, cost effectiveness and conservatism. Proper recognition and measurement of financial information rely on several assumptions and principles that underlie the financial reporting process.

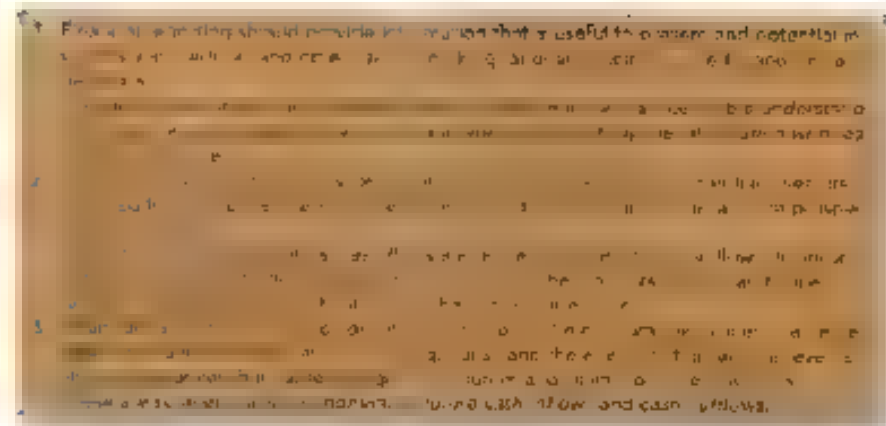
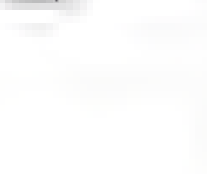
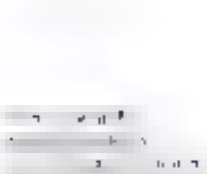
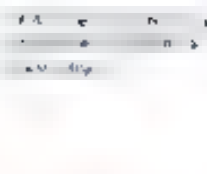
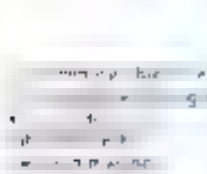
The remainder of this chapter is devoted to discussion of the components of the conceptual framework that bear on financial statements as depicted in Graphic 1-5, beginning with the objectives of financial reporting.

Objectives of Financial Reporting

In specifying the overriding objectives of financial reporting, the board considered the economic, legal, political, and social environment in the United States. The objectives would be quite different in a socialist economy where the majority of productive resources are government-owned.

Implicit in the objectives is an overall societal goal of serving the public interest by providing evenhanded financial and other information that, together with information from

GRAPHIC 1-6
Financial Reporting
Objectives



other source in that efficient use of capital market value, which serves as a pre-motivating efficient capital allocation of scarce resources in the economy.²

The importance to our economy of providing capital market participants with information was discussed previously, as were the specific cash flow information needs of investors and creditors. *SFAC 1* articulates this importance and investor and creditor needs through three basic financial reporting objectives listed in Graphic 1-6.

The first objective specifies a focus on investors and creditors. In addition to the importance of investors and creditors as key users, information to meet their needs is likely to have general utility to other groups of external users who are interested in essentially the same financial aspects of a business as are investors and creditors.

The second objective refers to the specific cash flow information needs of investors and creditors. The third objective emphasizes the need for information about economic resources and claims to those resources. This information would include not only the amount of resources and claims at a particular point in time but also changes in resources and claims that occur over periods of time. This information is key to predicting future cash flows.

Qualitative Characteristics of Accounting Information

- **LO6** To satisfy the stated objectives, information should possess certain characteristics. The purpose of *SFAC 2* is to outline the desired qualitative characteristics of accounting information.

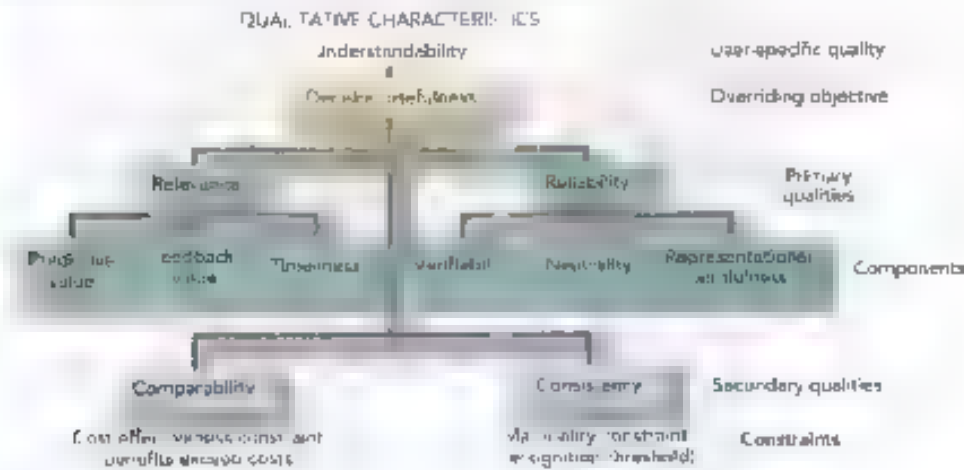
Graphic 1-7 indicates these qualitative characteristics, presented in the form of a hierarchy of their perceived importance. Notice that the main focus, as stated in the first concept statement, is on decision usefulness—the ability to be useful in decision making. Understandability means that users must understand the information within the context of the decision being made. This is a user-specific quality because users will differ in their ability to comprehend any set of information. The first stated financial reporting objective of *SFAC 1* is to provide comprehensible information to those who have a reasonable understanding of business and accounting practices. If a user does not understand the information,

PRIMARY QUALITATIVE CHARACTERISTICS

The primary decision-specific qualities that make accounting information useful are relevance and reliability. Both are critical. No matter how reliable, if information is not relevant to the decision at hand, it is useless. Conversely, relevant information is of little value if it cannot be relied on. Let's look closer at each of these two characteristics, including the components that make those qualities desirable. We also consider two secondary qualities—comparability and consistency.

²Introduction to "Objectives of Financial Reporting for Business Enterprises," *Statement of Financial Accounting Concepts No. 1* (Washington, D.C.: FASB, 1978).

GRAPHIC 1-7 Hierarchy of Desirable Characteristics of Accounting Information



Relevance. To make a difference in the decision process, information must possess predictive value and/or feedback value. Generally useful information will possess both qualities. For example, if net income did not conform with investor expectations about future cash-generating ability, then net income has feedback value for investors. This confirmation can also be useful in predicting future cash-generating ability as expectations are revised.

This predictive ability is equal to the concept of “earnings quality,” the ability of reported earnings (income) to predict a company’s future earnings. This is a concept we revisit frequently throughout this textbook in order to explore the impact on earnings quality of various topics under discussion. For instance, in Chapter 4 we discuss the contents of the income statement and certain classifications used in the statement from the perspective of helping analysts separate a company’s transitory earnings from its permanent earnings. This separation is critical to a meaningful prediction of future earnings. In later chapters, we look at how various financial reporting decisions affect earnings quality.

Timeliness also is an important component of relevance. Information is timely when it is available to users early enough to allow its use in the decision process. The need for timely information requires that companies provide information to external users on a periodic basis. The SEC requires its registrants to submit financial statement information not only on an annual basis, but also quarterly for the first three quarters of each fiscal year.

Information is timely if it is available to users before a decision is made.

Reliability. Reliability is the extent to which information is verifiable, representational faithfulness, and neutral. Verifiability implies a comparison among different measures. For example, the historical cost of a piece of land to be reported in the balance sheet of a company is usually highly verifiable. The cost can be traced to an exchange transaction, the purchase of the land. However, the market value of that land is much more difficult to verify. Appraisers could differ in their assessment of market value. The term *objectivity* often is linked to verifiability. The historical cost of the land is objective but the land’s market value is subjective, influenced by the measurer’s past experience and prejudices. A measurement that is subjective is difficult to verify, which makes it more difficult for users to rely on.

Representational faithfulness exists when there is agreement between a measure or description and the phenomenon it purports to represent. For example, assume that the term *inventory* in a balance sheet of a retail company is understood by external users to represent items that are intended for sale in the ordinary course of business. If inventory includes, say, machines used to produce inventory, then it lacks representational faithfulness.

Representational faithfulness exists when there is agreement between a measure or description and the phenomenon that the measure or description purports to represent.

FedEx Corporation

A FedEx financial statement
discloses the following
information:
At December 31, 2003,
the company had a
reserve for doubtful accounts
of \$1.5 million.

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FedEx Corporation

Several years ago, accountants used the term *reserve for doubtful accounts* to describe anticipated bad debts related to accounts receivable. For many, the term *reserve* means that a sum of money has been set aside for future bad debts. Because this was not the case, this term lacked representational faithfulness. The description “reserve, . . .” now has been changed to “allowance for uncollectible accounts” or “allowance for doubtful accounts.” In FedEx Corporation’s financial statements, the company discloses in Appendix B the following: *allowances of \$1.5 million and \$1.49 million at the end of 2003 and 2002, respectively.*

Reliability assumes the information being relied on is neutral with respect to parties potentially affected. In that regard, neutrality is highly related to the establishment of accounting standards. You learned earlier that changes in accounting standards can lead to adverse economic consequences to certain companies, their investors and creditors, and other interest groups. Accounting standards should be established with overall societal goals and specific objectives in mind and should try not to favor particular groups or companies.

The FASB faces a difficult task in balancing neutrality and the consideration of economic consequences. A new accounting standard may favor one group of companies over others, but the FASB must convince the financial community that this was a consequence of the standard and not an objective used to set the standard. Donald Kirk, one of the members of the first group to serve on the FASB, stressed the importance of neutrality in the standard-setting process.

The qualities of relevance and reliability often clash. For example, a net income forecast provided by the management of a company may possess a high degree of relevance to investors and creditors trying to predict future cash flows. However, a forecast necessarily contains subjectivity in the estimation of future events. GAAP presently do not require companies to provide forecasts of any financial variables.

DONALD KIRK

If financial reporting is to be credible, it must not be public confidence that the standard setting system is credible, that selection of board members is based on merit and not the influence of special interests, and that standards are developed and changed with care, despite the criticism and inevitable information not presented manipulation.”

SECONDARY QUALITATIVE CHARACTERISTICS

Graphic 1-7 identifies two secondary qualitative characteristics important to decision usefulness—comparability and consistency. Comparability is the ability to help users see similarities and differences between events and conclusions. We already have discussed the importance of the ability of investors and creditors to compare information across companies to make their resource allocation decisions. Closely related to comparability is the notion that consistency of accounting practices over time permits valid comparisons between different periods. The predictive and feedback value of information is enhanced if users can compare the performance of a company over time.²⁴ In the FedEx financial statements in Appendix B, notice that disclosure Note 1 includes a summary of significant accounting policies. A change in one of these policies would require disclosure in the financial statements and notes to restore comparability between periods.

Practical Boundaries (Constraints) to Achieving Desired Qualitative Characteristics

Most of us learn early in life that we can't get everything we desire. The latest electronic gadget may have all the qualitative characteristics that current technology can provide, but limited resources may lead us to purchase a fully functional model with fewer bells and whistles. Cost effectiveness also constrains the accounting choices we make. Specifically,

When a company changes its accounting practices, it must disclose the change in the financial statements and notes. The company must also disclose the reasons for the change and the effect of the change on the financial statements.



it is important that the benefits of endowing accounting information with all the qualitative characteristics we've discussed exceed the costs of doing so.

A related constraint on the type of information we provide is the concept of *materiality*. For an additional \$20 you can add the latest enhancements to that electronic gadget you're considering. However, despite the higher specs, if you feel it will provide no discernible improvement in the performance of the product as you will use it, why pay the extra \$20? In an accounting context, if a more costly way of providing information is not expected to have a material effect on decisions made by those using the information, the less costly method may be a better one.

Cost effectiveness and materiality impart practical constraints on each of the qualitative characteristics of accounting information. Both suggest that a certain accounting treatment might be different from that dictated solely by consideration of desired qualities of information.

COST EFFECTIVENESS

The costs of providing accounting information include those of gathering, processing, and disseminating information. There also are costs to users when interpreting information. In addition, costs include possible adverse economic consequences of implementing accounting standards. These costs in particular are difficult, if not impossible, to quantify.

An example of this is the standard that requires companies operating in more than one operating segment to disclose certain disaggregated financial information.³⁶ In addition to information gathering, processing, and dissemination costs, many companies feel that this reporting requirement imposes what could be called *competitive disadvantage costs*. These companies do not want their competitors to have the disaggregated data.

The perceived benefit from this or any accounting standard is increased decision usefulness of the information provided, which, hopefully, improves the resource allocation process. It is inherently impossible to quantify this benefit. The elaborate information-gathering process undertaken by the FASB in setting accounting standards is an attempt to assess both costs and benefits of a proposed accounting standard, even on a subjective, nonquantifiable manner. In the case of reporting disaggregated information, the FASB decided that the perceived benefits of disclosing this information exceeds the costs of providing it.

MATERIALITY

Materiality is another pervasive constraint. Information is material if it can have an effect on a decision made by users. One consequence of considering materiality is that GAAP need not be followed if an item is immaterial. For example, GAAP requires that receivables be measured at their net realizable value. If bad debts are small, then they should be estimated and subtracted from the face amount of receivables for balance sheet measurement. This is called the *allowance method* of accounting for bad debts. However, if the amount of anticipated bad debts is not considered to be large enough to affect decisions made by users, the *direct write-off method* of accounting for bad debts can be used even though it is not a generally accepted technique. This method does not require estimation of bad debts for equating

The threshold for materiality will depend principally on the relative dollar amount of the transaction. For example, \$ 0.000 in total anticipated bad debts for a multibillion dollar company like FedEx would not be considered material. The method used to account for these anticipated bad debts will not affect the decisions made by FedEx Corporation's financial statement users. The same \$10,000 amount, however, could easily be material for a neighborhood pizza parlor. The FASB has been reluctant to establish any quantitative materiality guidelines. The threshold for materiality has been left to the subjective judgment of the company preparing the financial statements and its auditor.

Materiality is concerned not only with the dollar amount of an item but with the nature of the item as well. In 1949 the SEC issued *Staff Accounting Bulletin No. 49*.³⁷ The bulletin expresses the SEC's view that exclusive reliance on quantitative benchmarks to assess

Table 1.1: Financial Statement Components

Component	Description
Assets	Resources owned by the company
Liabilities	Debts or obligations of the company
Equity	Ownership interest in the company
Revenue	Income from sales of goods or services
Expenses	Costs incurred in the process of generating revenue

Table 1.2: Accounting Principles

Principle	Explanation
Consistency	Using the same accounting method over time
Materiality	Reporting information that can affect decisions
Cost-benefit	Ensuring that the benefits of reporting exceed the costs
Neutrality	Reporting information without bias
Verifiability	Ensuring that the information can be independently verified

Table 1.3: Financial Statement Ratios

Ratio	Formula
Current Ratio	Current Assets / Current Liabilities
Debt to Equity Ratio	Debt / Equity
Return on Equity	Net Income / Equity

36. FASB, *Statement of Financial Accounting Standards No. 14*, issued 1972. The contents of this standard are described in the appendix.

37. SEC, *Staff Accounting Bulletin No. 49*, Washington, DC: SEC, August 1949.

considered a primary financial statement. Appropriate A number of other issues including whether the item in question involves an unlawful transaction, should also be considered when determining materiality. For example, an activity such as the illegal payment of \$10,000 to an official of a foreign government to secure a valuable contract would probably be considered material even if the amount is small relative to the company's

CONSERVATISM

Conservatism is a practice followed in an attempt to ensure that uncertainties and risks inherent in business situations are adequately considered. It is a frequently cited characteristic of accounting information. Conservatism is not, however, a desired qualitative characteristic, but a practical justification for some accounting choices. In that sense, conservatism serves as a third constraint on the achievement of various qualitative characteristics.³²

The need for conservatism often is discussed in conjunction with the estimates required in preparing financial statements. Suppose, for example, that a company's management has determined that the most likely amount being \$25,000, and that these amounts are material. A conservative estimate of \$20,000 is used for net receivables and the highest expense (and therefore the lowest net income) in the income statement.

However, financial accounting information users could just as easily be misled by a conservative estimate as by an optimistic one. It is the best approach of underestimating bad debts, then that is the number that should be used. Conservatism is not a desirable characteristic nor is it an accounting principle. Nevertheless, there seem to be some accounting practices, such as the lower-of-cost-or-market method for measuring inventory (Chapter 9), that appear to be grounded in conservatism. However, these practices are justified by other accounting principles such as the realization principle as discussed later in this chapter. The fact that some users of financial statements are more likely to be misled by optimistic than by pessimistic information is not a justification for the use of conservatism. In how information is reported, we also need to emphasize that it is not a desired characteristic from a qualitative standpoint. Instead, conservatism is a practical constraint on the extent to which other qualitative characteristics are installed in accounting information.

Now that we've discussed the qualities that the elements of financial statements should possess, let's look more closely at the elements themselves.

Elements of Financial Statements

• LO 6



SFAC 6 defines 10 elements of financial statements. These elements are "the building blocks with which financial statements are constructed—the classes of items that financial statements comprise."³³ They focus directly on items related to measuring performance and to reporting financial position. The definitions of these elements operationalize the resources, ³⁴ The accrual accounting model actually is embodied in the element definitions. The FASB recognized that accrual accounting produces information that is more successful in predicting future cash flows than is cash flow accounting.

The 10 elements are: (1) assets, (2) liabilities, (3) equity, (4) revenues, (5) expenses, (6) gains, (7) losses, (8) comprehensive income, (9) assets, and (10) comprehensive income.

You probably already know in general terms what most of these elements mean. But as you will see when they are discussed, it is helpful to have a deeper understanding of their meaning. You may recognize the first three elements—assets, liabilities, and equity—as those that portray the financial position of an enterprise.

The 10 elements of financial statements defined in SFAC 6 are: (1) assets, (2) liabilities, (3) equity, (4) revenues, (5) expenses, (6) gains, (7) losses, (8) comprehensive income, (9) assets, and (10) comprehensive income.

³²The FASB's hierarchy of qualitative characteristics does not specifically identify conservatism as a constraint. Most theorists include conservatism as a constraint on the achievement of the qualitative characteristics.

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³⁴The FASB's hierarchy of qualitative characteristics does not specifically identify conservatism as a constraint. Most theorists include conservatism as a constraint on the achievement of the qualitative characteristics.

Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.

A key characteristic of this definition is that an asset represents *probable* future economic benefits. A receivable is an asset only if it is probable that future benefits will result, that cash will be collected. The *controlled by* aspect of the definition also is important. The employees of a company certainly represent future economic benefits to a company. However, they are not owned or controlled by the company and do not qualify as assets.

Liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events.¹⁵

Most liabilities require the future payment of cash, the amount and timing of which are specified by a legally enforceable contract. Actually, though, a liability need not be payable in cash. Instead, it may require the company to transfer other assets or to provide services. For example, a warranty liability is created for the seller when a product is sold and the seller guarantees to fix or replace the product if it proves defective and it is probable that a material amount of product sold will, in fact, prove defective. A liability also need not be represented by a written agreement, nor be legally enforceable. For example, a company might choose to pay a terminated employee's salary for a period of time after termination even though not legally required to do so. The commitment creates a liability at the date of termination.

Equity or net assets, called **shareholders' equity** or **stockholders' equity** for a corporation, is the residual interest in the assets of an entity that remains after deducting liabilities.

Assets and liabilities are measured at entity equity value. Equity is simply a residual amount. The accounting equation illustrates financial position:

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

or, **ASSET**

For a corporation, equity arises primarily from two sources: (1) amounts *invested* by shareholders in the corporation and (2) amounts *earned* by the corporation on behalf of its shareholders. These two sources are reported as (1) paid-in capital and (2) retained earnings. We discuss this classification of shareholders' equity in more depth in Chapter 3.

The next two elements defined in SFAC 6 deal with changes in equity from owner transactions.

Investments by owners are increases in equity resulting from transfers of resources (usually cash) to a company in exchange for ownership interest.

A corporation's issuance of ownership shares of stock in exchange for cash represents an investment by owners.

Distributions to owners are decreases in equity resulting from transfers to owners.

A cash dividend paid by a corporation to its shareholders is the most common distribution to owners.

Revenues, gains, expenses, and losses describe changes in equity due to profit-generating transactions.

Revenues are inflows or other enhancements of assets or settlements of liabilities from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major, or central, operations.

Assets	Liabilities	Equity
1. Cash	1. Accounts payable	1. Paid-in capital
2. Accounts receivable	2. Notes payable	2. Retained earnings
3. Inventory	3. Long-term debt	

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¹⁵ SFAC 6 defines liabilities as "present obligations of an entity to transfer assets or provide services to other entities in the future as a result of past transactions or events." The definition is broad enough to include obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.

Revenues are gross inflows of assets resulting from providing goods or services.

A key characteristic is that revenues are **inflows**. The enterprise is acquiring something in exchange for providing goods and services to customers. Also, providing these goods and services represents a major operation of the enterprise.

On the other hand, if selling the item is not part of the central operations of the business but, instead, is only an incidental result of those operations, the inflow of assets would produce a **gain** rather than a revenue.

Gains are increases in equity from peripheral, or incidental, transactions of an entity.

FedEx earns revenue by providing a service: delivering packages to its customers. If FedEx sold a piece of machinery used to deliver packages for an amount greater than its book value (original cost less depreciation recorded up to the date of sale), a gain would result. Gains are not inflows; the difference between the amount received and book value. Revenues are gross inflows, measured as the amount received or to be received for the goods or services without regard to the cost of providing the goods or services.

Expenses are gross outflows incurred in generating revenues.

Expenses are outflows or other using up of assets or incurrences of liabilities during a period from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major, or central, operations.

A key characteristic is that expenses represent outflows of resources incurred in the process of generating revenues.

Losses represent decreases in equity arising from peripheral, or incidental, transactions of an entity.

If FedEx sold that piece of machinery used to deliver packages for *less* than its book value, a loss would result. So, losses are the opposites of gains—they are net outflows rather than net inflows. They differ from expenses by being net rather than gross outflows and by being peripheral, or incidental, transactions rather than major or central operations. Revenues plus gains less expenses and losses for a period equals net income or net loss, the so-called bottom line of the income statement.⁴

You should note that the definitions of these nine elements are in basic agreement with those used in practice. But SFAC 6 also introduced a new term, the 10th element, called **comprehensive income**.

Comprehensive income is the change in equity of a business enterprise during a period from transactions and other events and circumstances from nonowner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners.

Comprehensive income often does not equal net income.

Under present GAAP, net income as reported in the income statement often doesn't equal comprehensive income. The difference is the treatment of certain changes in assets and liabilities *not* included in the determination of net income for the period in which they are recognized but instead reported collectively as a separate component of shareholders' equity in the balance sheet called accumulated other comprehensive income. For example, in your study of investments in Chapter 2, you will learn that for certain types of investments valued at fair values in the balance sheet, the changes in those values are not included in net income but rather in a separate component of shareholders' equity. Comprehensive income is discussed in Chapter 4.

FedEx Corporation

In the FedEx Corporation financial statements in Appendix B, the income statement for the most recent fiscal year reports net income of \$838 million. The balance sheet for the most recent fiscal year shows accumulated other comprehensive income of \$46 million, and the statement of changes in stockholders' investment and comprehensive income provides the details of the change in this figure from the prior year.

Recognition and Measurement Concepts

Now that the various elements of financial statements have been identified, we discuss when they should be recognised, measured, and how they should be measured. *SFAC 5* addresses these issues. Recognition refers to the process of admitting information into the basic financial statements. Measurement is the process of associating numerical amounts to the elements. For example, a revenue was previously defined as an inflow of assets from selling a good or providing a service. But, *when* should the revenue event be recorded, and at *what* amount?

RECOGNITION

According to SFAC 3, an item should be recognized in the basic financial statements when it meets the following four criteria, subject to a cost effectiveness constraint and materiality considerations:

1. *Definition*. The item meets the definition of an element of Rinzowa's statements.
2. *Measurability*. The item has a relevant attribute measurable with sufficient reliability.
3. *Relevance*. The information about it is capable of making a difference in user's life.
4. *Reliability*. The information is representationally faithful, verifiable and neutral.¹⁷

These obviously are very general guide lines. The concept statement does not address specific recognition issues.

MEASUREMENT

The question of measurement involves two choices: 1) the choice of a unit of measurement, and 2) the choice of an attribute to be measured. SFAC¹ essentially confirms existing practice in both of these areas. The monetary unit or measurement scale used in financial statements is nominal units of money without any adjustment for changes in purchasing power. In addition, the board acknowledged that different attributes such as historical cost, net realizable value, and present value of future cash flows are presently used as measures of different financial statement elements, and that they expect this practice to continue. For example, property, plant, and equipment are measured at historical cost, accounts receivable are measured at their net realizable value, and most long-term liabilities, such as bonds, are measured at the present value of future cash payments.

Present value measurements have long been associated with accounting valuation. However, because of its increased prominence, present value is the focus of a recent FASB concept statement that provides a framework for using future cash flows as the basis for accounting measurement and also asserts that the objective in valuing an asset or liability using present value is to approximate the fair value of that asset or liability.¹⁸ We explore this objective in more depth in Chapter 6.

Answers to the recognition and measurement questions are unhelpful in generally accepted accounting principles. *SSAI* confirms some of the more important of these principles used in present practice. GAAP consist of broad principles and specific standards. The accrual accounting model is an example of a broad principle. Before addressing additional key broad principles, we look at some important assumptions that underlie these fundamental concepts.

UNDERLYING ASSUMPTIONS

The four basic assumptions underlying GAAP are: 1) the economic entity assumption, (2) the going concern assumption, 3) the periodicity assumption, and (4) the monetary unit assumption.

Н.А. ДУДНИКОВА

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Economic Entity Assumption. An *economic entity* is an all economic activity can be identified with a particular economic entity. Investors desire information about an economic entity that corresponds to their ownership interest. For example, if you were considering buying more ownership stock in FedEx, you would want information on the various operating units that constitute FedEx. You would need information not only about their United States operations but also about their European and other international operations. Also, you would not want the information about FedEx combined with that of United Parcel Service (UPS), another air freight company. These would be two separate *economic entities*. The financial information for the various companies (subsidiaries) in which FedEx owns a controlling interest (greater than 50% ownership of voting stock) should be combined with that of FedEx (the parent). The parent and its subsidiaries are separate *legal entities* but one *accounting entity*.

Another key aspect of this assumption is the distinction between the economic activities of owners and those of the company. For example, the economic activities of a sole proprietorship, Uncle Jim's Restaurant, should be separated from the activities of its owner, Uncle Jim. Uncle Jim's personal residence, for instance, is not an asset of the business.

Going Concern Assumption. Another necessary assumption is that, in the absence of information to the contrary, it is anticipated that a business entity will continue to operate indefinitely. Accountants realize that the going concern assumption does not always hold since there certainly are many business failures. However, companies are begun with the hope of a long- for and many achieve that goal.

This assumption is critical to many broad and specific accounting principles. For example, the assumption provides justification for measuring many assets based on their historical costs. If it were known that an enterprise was going to cease operations in the near future, assets and liabilities would not be measured at their historical costs but at their current liquidation values. Similarly, depreciation of a building over an estimated life of 40 years presumes the business will operate that long.

Periodicity Assumption. The periodicity assumption relates to the qualitative characteristic of *timeliness*. External users need *periodic* information to make decisions. This need for periodic information requires that the economic life of an enterprise (presumed to be indefinite) be divided into artificial time periods for financial reporting. Corporations whose securities are publicly traded are required to provide financial information to the SEC on a quarterly and annual basis.²⁴ Financial statements often are prepared on a monthly basis for banks and others that might need more timely information.

For many companies, the annual time period (the *fiscal year*) used to report to external users is the calendar year. However, other companies have chosen a *fiscal year* that does not correspond to the calendar year. The accounting profession and the Securities and Exchange Commission advocate that companies adopt a fiscal year that corresponds to their natural business year. A natural business year is the 12-month period that ends when the business activities of a company reach their lowest point in the annual cycle. For example, many retailers, Wal-Mart for example, have adopted a fiscal year ending on January 31. Business activity in January generally is quite slow following the very busy Christmas period. We can see from the FedEx financial statements that the company's fiscal year ends on May 31. The Campbell Soup Company's fiscal year ends in July, Clorox's in June, and Microsoft's in August.

Monetary Unit Assumption. Recall that to *measure* financial statement elements, a unit or scale of measurement must be chosen. Information would be difficult to use if, for example, assets were listed as "three machines, two trucks, and a building." A common denominator is needed to measure all elements. The dollar in the United States is the most appropriate common denominator to express information about financial statement elements and changes in those elements.

²⁴The report that must be filed for the first three quarters of each fiscal year is Form 10-Q and the annual report is Form 10-K.

One problem with this assumption is that the monetary unit is presumed to be stable over time. That is, the value of the dollar, in terms of its ability to purchase certain goods and services, is constant over time. This obviously does not strictly hold. The U.S. economy has experienced periods of rapidly changing prices. To the extent that prices are unstable, and since machines, trucks and buildings were purchased at different times, the monetary unit used to measure them is not the same. The effect of changing prices on financial information generally is discussed elsewhere in your accounting curriculum, often in an advanced accounting course.

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ACCOUNTING PRINCIPLES

There are four important broad accounting principles that provide significant guidance for accounting practice: 1) the historical cost principle, 2) the realization principle (also known as the revenue recognition principle), 3) the matching principle, and 4) the full-disclosure principle. These principles deal with the critical issues of recognition and measurement. The accrual accounting model is embodied in each of the principles.

Historical Cost Principle. The FASB recognized in SFAC 5 that elements in financial statements currently are measured by different attributes. In general, however, GAAP measures assets and liabilities based on their *original transaction value*, that is, their historical costs. For an asset, this is the fair value of what is given in exchange (usually cash) for the asset at its initial acquisition. For liabilities, it is the current cash equivalent received in exchange for assuming the liability. For example, if a company borrows \$1 million cash and signed an interest-bearing note promising to repay the cash in the future, the liability would be valued at \$1 million, the cash received in exchange.¹⁰

Why base measurement on historical costs? After all, the current value of a company's manufacturing plant might seem more relevant than its original cost. First, historical cost provides important cash flow information as it represents the cash or cash equivalent paid for an asset or received in exchange for the assumption of a liability. Second, because historical cost valuation is the result of an exchange transaction between two independent parties, the agreed-on exchange value is objective and highly verifiable. Alternatives such as measuring an asset at its current market value involve *estimating* a selling price. An example given earlier in the chapter concerned the valuation of a parcel of land. Appraisers could easily differ in their assessment of current market value.

There are occasions where a departure from measuring an asset based on its historical cost is warranted. Some assets, for instance, are measured at their *net realizable value*. For example, if a company purchased goods or services on account for \$10,000, the asset, accounts receivable, would usually be valued at \$10,000, the original transaction value. Subsequently, if \$2,000 in bad debts were anticipated, net receivables should be valued at \$8,000, the net realizable value. Departures from historical cost measurement such as this provide more appropriate information in terms of the overall objective of providing information to aid in the prediction of future cash flows.

Realization Principle. Determining accounting income by the accrual accounting model is a challenging task. When to recognize revenue is crucial in this determination. Revenues are inflows of assets resulting from providing a product or service to a customer. At what point is this event recognized by an increase in assets? The realization principle requires that two criteria be satisfied before revenue can be recognized:

1. The earnings process is judged to be complete or virtually complete.
2. There is reasonable certainty as to the collectibility of the asset to be received (usually cash).

These criteria help ensure that a revenue event is not recorded until an enterprise has performed all or most of its earnings activities for a financially capable buyer. The primary earnings activity that triggers the recognition of revenue is known as the *critical event*. The

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¹⁰The current cash equivalent for many liabilities also will equal the present value of their cash payments. This is discussed in a subsequent chapter.

Both revenue

is *earned* at the time
the goods or services are
provided.

Revenue recognized

when the revenue is
earned.

Expenses are

incurred at the time
the goods or services are
provided.

There is a time

when the revenue is
earned and the expense is
incurred.

Some expenses are

incurred at the time
the revenue is earned.

Some expenses are

incurred at a later date
than the revenue is earned.

crucial event for many businesses occurs at the **point-of-sale**. This usually takes place when the goods or services sold to the buyer are *delivered* (i.e., title is transferred).

The *timing* of revenue recognition is a key element of earnings measurement. An income statement should report the results of all operating activities for the time period specified in the financial statements. A one-year income statement should report the company's accomplishments only for that one year period. Revenue recognition criteria help ensure that a proper cut-off is made each reporting period and that exactly one year's activity is reported in that income statement. Not adhering to revenue recognition criteria could result in overstating revenue and hence net income in one reporting period and, consequently, understating revenue and net income in a subsequent period. Notice that revenue recognition criteria allow for the implementation of the *accrual* accounting model. Revenue should be recognized in the period it is earned, *not necessarily in the period in which cash is received*.

Some revenue-producing activities call for revenue recognition over time, rather than at one particular point in time. For example, revenue recognition could take place *during* the earnings process for long-term construction contracts. We discuss revenue recognition in considerable depth in Chapter 5. That chapter also describes in more detail the concept of an earnings process and how it relates to performance measurement.

Matching Principle. When are expenses recognized? The matching principle states that expenses are recognized in the same period as the related revenues. There is a cause-and-effect relationship between revenue and expense recognition implied in this definition. In a given period, revenue is recognized according to the realization principle. The matching principle then requires that all expenses incurred in generating that same revenue also be recognized. The net result is a measure—the income—that matches current period accomplishments and sacrifices. This accrual-based measure provides a good indicator of future cash-generating ability.

Although the concept is straightforward, its implementation can be difficult. The difficulty arises in trying to identify cause-and-effect relationships. Many expenses are not incurred *directly* because of a revenue event. Instead, the expense is incurred to generate the revenue, but the association is indirect.

The matching principle is implemented by one of four different approaches, depending on the nature of the specific expense. Only the first approach involves an actual cause-and-effect relationship between revenue and expense. In the other three approaches, the relationship is indirect.

An expense can be recognized:

1. Based on an exact cause-and-effect relationship between a revenue and expense event.
2. By associating an expense with the revenues recognized in a specific time period.
3. By a systematic and rational allocation to specific time periods.
4. In the period incurred, without regard to related revenues.

The first approach is appropriate for *cost of goods sold*. There is a definite cause-and-effect relationship between **Del Inc.**'s revenue from the sale of personal computers and the expense to produce those computers. Components paid to vendors/suppliers for producing revenues also is an example of an expense recognized based on this approach.

Unfortunately, for most expenses there is no obvious cause-and-effect relationship between a revenue and expense event. In other words, the revenue event does not directly cause expenses to be incurred. Many expenses, however, can be related to periods of time during which revenue is earned. For example, the monthly salary paid to an office worker is not directly related to any specific revenue event. The employee provides services during the month. The asset used to pay the employee, cash, provides benefits to the company only for that one month and *indirectly* relates to the revenue recognized in that same period.

Some costs are incurred to acquire assets that provide benefits to the company for more than one reporting period. Refer again to the Carter Company example in Illustration 1-1 on page 7. At the beginning of year 1, \$60,000 in rent was paid covering a three-year period. This asset, prepaid rent, helps generate revenues for more than one reporting period. In that example, we chose to "systematically and rationally" allocate rent expense equally to each of the three one-year periods rather than to charge the expense to year 1.

The fourth approach to expense recognition is called for in situations when costs are incurred but it is impossible to determine in which period or periods, if any, revenues will occur. For example, consider the cost of advertising. Advertising expenditures are incured with the presumption that advertising that expense will generate incremental revenues. Let's say FedEx spends \$3 million for a series of television commercials. It's difficult to determine when, how much, or even whether additional revenues occur as a result of that particular series of ads. Because of this difficulty, advertising expenditures are recognized as expenses in the period incurred, with an attempt made to match them with revenues.

The Full-Disclosure Principle. Remember, the purpose of accounting is to provide information that is useful to decision makers. So, naturally, if there is accounting information not included in the primary financial statements that would benefit users, that information should be provided too. The full-disclosure principle means that the financial reports should include any information that could affect the decisions made by external users. Of course, the benefits of that information, as noted earlier, should exceed the costs of providing the information. Supplemental information is disclosed in a variety of ways, including

- 1. Parenthetical comments or modifying comments placed on the face of the financial statements.
- 2. Explanatory notes conveying additional insights about company operations, accounting principles, contractual agreements, and pending litigation.
- 3. Supplemental financial statements that report more detailed information than is shown in the primary financial statements.

We find examples of these disclosures in the FedEx financial statements in Appendix B located at the back of this text. A parenthetical or modifying comment is provided in the common stockholders' equity section of the balance sheet with disclosure of the number of shares of stock authorized, issued, and outstanding. The statements include several notes as well as a supplemental statement disclosing information about the company's quarterly operating results. Notice that the FedEx Corporation financial statements include the following statement: "The accompanying notes are an integral part of these consolidated financial statements." We discuss and illustrate disclosure requirements as they relate to specific financial statement elements in later chapters as those elements are discussed.

Graphic 1-8 provides a summary of the accounting assumptions and principles that guide the recognition and measurement of accounting information:

| Assumptions | Description | |
|-----------------|--|---|
| Economic entity | A particular economic event can be identified with a business entity or a particular business entity will continue to operate. | In a particular economic entity and it is not related to a related entity. |
| Periodicity | The life of a company can be divided into regular time periods to provide timely information to external users. | Accounting is done at time periods to provide timely information to external users. |
| Monetary unit | Accounting records financial statements in terms of the U.S. dollar. | Elements should be measured in terms of the U.S. dollar. |
| Principles | | |
| Historical cost | Assets and liabilities are measured at their original cost or recorded in an exchange transaction. | Recorded at their original cost or recorded in an exchange transaction. |
| Recognition | Revenues should be recognized only after all the obligations have been satisfied. | The earnings process is virtually complete before the asset can be realized from the customer. |
| Matching | Expenses should be recognized in the period in which they are incurred. | The reporting period in which the expense is incurred. |
| Full disclosure | Any information that could change the decisions made by external users should be provided in the financial statements. | Information made by external users should be provided in the financial statements subject to the cost-benefit comparison. |

Some expenses are recognized in the period incurred, but they are not related to revenues.

Any information useful to decision makers should be provided in the financial statements subject to the cost-benefit comparison.

FedEx Corporation

Graphic 1-8

Summary of Recognition and Measurement Concepts

Ethics deals with the ability to distinguish right from wrong.

Ethics in Accounting

Ethics is a term that refers to a code or moral system that provides criteria for evaluating right and wrong. An ethical dilemma is a situation in which an individual or group is faced with a decision that tests this code. Many of these dilemmas are simple to recognize and resolve. For example, have you ever been tempted to call your professor and ask for an extension on the due date of an assignment by claiming a fictitious illness? Temptation like this will test your personal ethics.

Accountants, like others operating in the business world, are faced with many ethical dilemmas, some of which are complex and difficult to resolve. For instance, the capital markets' focus on periodic profits may tempt a company's management to bend or even break accounting rules to inflate reported net income. In these situations, technical competence is not enough to resolve the dilemma.

ETHICS AND PROFESSIONALISM

One of the elements that many believe distinguishes a profession from other occupations is the acceptance by its members of a responsibility for the interests of those it serves. A high standard of ethical behavior is expected of those engaged in a profession. These standards often are articulated in a code of ethics. For example, law and medicine are professions that have their own codes of professional ethics. These codes provide guidance and rules to members in the performance of their professional responsibilities.

Public accounting has achieved widespread recognition as a profession. The AICPA, the national organization of professional certified public accountants, has its own Code of Professional Conduct, which prescribes the ethical conduct members should strive to achieve. Similarly, the Institute of Management Accountants (IMA)—the primary national organization of accountants working in industry and government—has its own code of ethics, as does the Institute of Internal Auditors—the national organization of accountants providing internal auditing services for their own organizations.

ANALYTICAL MODEL FOR ETHICAL DECISIONS

Ethical codes are informative and helpful. However, the motivation to behave ethically must come from within oneself and not just from the fear of penalties for violating professional codes. Presented below is a sequence of steps that provide a framework for analyzing ethical issues. These steps can help you arrive at your own sense of right and wrong in ethical dilemmas.

- Step 1.** Determine the facts of the situation. This involves determining the who, what, where, when, and how.
- Step 2.** Identify the ethical issue and the stakeholders. Stakeholders may include shareholders, creditors, management, employees, and the community.
- Step 3.** Identify the values related to the situation. For example, in some situations confidentiality may be an important value that may conflict with the right to know.
- Step 4.** Specify the alternative courses of action.
- Step 5.** Evaluate the courses of action specified in step 4 in terms of their consistency with the values identified in step 3. This step may or may not lead to a suggested course of action.
- Step 6.** Identify the consequences of each possible course of action. If step 5 does not provide a course of action, assess the consequences of each possible course of action for all of the stakeholders involved.
- Step 7.** Make your decision and take any indicated action.

defined in Exhibit 1.1. According to the Institute of Internal Auditors (IIA), "The primary purpose of the internal audit function is to provide an independent, objective assessment and reporting on the organization's internal controls, risk management, and governance processes." The IIA also states that the internal audit function should be "an integral part of the organization's risk management system."



ETHICAL DILEMMA

You have recently been employed by a large retail chain that sells sporting goods. One of your tasks is to help prepare periodic financial statements for external distribution. The chain's largest creditor, National Savings & Loan, receives quarterly financial statements, and you are currently working on the statements for the three-month period ending June 30, 2006.

During the months of May and June, the company spent \$1,200,000 on a large radio and TV advertising campaign. The \$1,200,000 included the costs of producing the commercials as well as the radio and TV time purchased to run the commercials. All of the costs were charged to advertising expense. The company's chief financial officer (CFO) has asked you to prepare a June 30 adjusting entry to remove the costs from advertising expense and to set up an asset called prepaid advertising that will be expensed in July. The CFO explained that "This advertising campaign has produced significant sales in May and June and I think it will continue to bring in customers through the month of July. By recording the ad costs as an asset, we can match the cost of the advertising with the additional July sales. Besides, if we expense the advertising in May and June, we will show an operating loss on our income statement for the quarter. The bank requires that we continue to show quarterly profits in order to maintain our loan in good standing."

Ethical dilemmas are presented throughout the text. These dilemmas are designed to raise your consciousness of accounting issues with ethical ramifications. The analytical steps outlined above provide a framework with which to evaluate these situations. In addition, your instructor may assign end-of-chapter ethics cases for further discussion and application.

FINANCIAL REPORTING CASE

SOLUTION

1. What should you tell your friend about the presence of accounting standards in the United States? Who has the authority for standard setting? Who has the responsibility? (p. 8) In the United States we have a set of standards known as generally accepted accounting principles (GAAP). GAAP are a dynamic set of both broad and specific guidelines that companies should follow when measuring and reporting the information in their financial statements and related notes. The Securities and Exchange Commission has the authority to set accounting standards for companies whose securities are publicly traded but always has delegated the responsibility to the accounting profession. At present, the Financial Accounting Standards Board is the private sector body responsible for standard setting.
2. What is the economic and political environment in which standard setting occurs? (p. 12) The setting of accounting and reporting standards often has been characterized as a political process. Standards, particularly changes in standards, can have significant differential effects on companies, investors and creditors, and other interest groups. A change in an accounting standard or the introduction of a new standard can result in a substantial redistribution of wealth within our economy. The FASB must consider potential economic consequences of a change in an accounting standard or the introduction of a new standard.
3. What is the relationship among management, auditors, investors, and creditors that tends to preclude the "What would you like it to be?" attitude? (p. 76) It is the responsibility of management to apply accounting standards when communicating with investors and creditors through financial statements. Auditors serve as independent intermediaries to help ensure that the management-prepared statements are presented fairly in accordance with GAAP. In providing this assurance, the auditor precludes the "What would you like it to be?" attitude.
4. In general, what is the conceptual framework that underlies accounting principles? (p. 78) The conceptual framework is a coherent system of interrelated objectives and fundamental principles that can be used to assist in developing standards and that describes the nature, functions, and limits of financial accounting and reporting. The fundamentals are the underlying concepts



of accounting, concepts that guide the selection of events to be accounted for, the measurement of those events, and the means of summarizing and communicating them to interested parties. ■

THE BOTTOM LINE

1. Financial accounting is concerned with providing relevant financial information to various external users. However, the primary focus is on the financial information provided by profit-oriented companies to their present and potential investors and creditors.
2. Cash basis accounting provides a measure of periodic performance called *net operating cash flows*, which is the difference between cash receipts and cash disbursements from transactions related to providing goods and services to customers. Accrual accounting provides a measure of performance called *net income*, which is the difference between revenues and expenses. Periodic net income is considered a better indicator of future operating cash flows than is current net operating cash flows.
3. Generally accepted accounting principles (GAAP) comprise a dynamic set of both broad and specific guidelines that companies follow when measuring and reporting the information in their financial statements and related notes. The Securities and Exchange Commission (SEC) has both the authority and responsibility to set accounting standards. However, the SEC has always delegated the responsibility to a private sector body. At this time, the Financial Accounting Standards Board (FASB).
4. Accounting standards can have significant differential effects on companies, investors, creditors, and other interest groups. For this reason, the setting of accounting standards often has been characterized as a political process.
5. The FASB's conceptual framework is a set of cohesive objectives and fundamental concepts on which financial accounting and reporting standards will be based.
6. The objectives of financial reporting are concerned with providing information to help investors and creditors predict future cash flows. The primary decision-specific qualities that make accounting information useful are relevance and reliability. To be relevant, information must possess predictive value and/or feedback value and must be provided in a timely manner. The characteristics of reliable information are verifiability, representational faithfulness, and neutrality. The 10 elements of financial statements are assets, liabilities, equities, investments by owners, distributions to owners, revenues, expenses, gains, losses, and comprehensive income.
7. The four basic assumptions underlying GAAP are (1) the economic entity assumption, (2) the going concern assumption, (3) the periodicity assumption, and (4) the monetary unit assumption.
8. The four broad accounting principles that guide accounting practice are (1) the historical cost principle, (2) the realization principle, (3) the matching principle, and (4) the full-disclosure principle. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 1-1 What is the function and primary focus of financial accounting?
- Q 1-2 What is meant by the phrase *efficient allocation of resources*? What mechanisms foster the efficient allocation of resources in the United States?
- Q 1-3 Identify two important variables to be considered when making an investment decision.
- Q 1-4 What must a company do in the long run to be able to provide a return to investors and creditors?
- Q 1-5 What is the primary objective of financial accounting?
- Q 1-6 Define net operating cash flows. Briefly explain why periodic net operating cash flows may not be a good indicator of future operating cash flows.
- Q 1-7 What is meant by GAAP? Why should all companies follow GAAP in reporting to external users?
- Q 1-8 Explain the roles of the SEC and the FASB in the setting of accounting standards.
- Q 1-9 Explain the role of the auditor in the financial reporting process.

- Q 1.13 What three key provisions of the Sarbanes-Oxley Act of 2002 Order your list from most important to least important in terms of the likely long-term impact on the accounting profession and financial reporting.
- Q 1.14 Explain what is meant by adverse economic consequences of failure of financial accounting standards.
- Q 1.15 Why does the IASB undertake a series of elaborate international gathering, even before issuing a proposed standard?
- Q 1.16 What is the purpose of the IASB's conceptual framework project?
- Q 1.17 Discuss the terms *relevance* and *reliability* as they relate to financial accounting information.
- Q 1.18 What are the components of relevance of information? What are the components of reliable information?
- Q 1.19 Explain what is meant by: The benefits of accounting information must exceed the costs.
- Q 1.20 What reason is there for the existence of financial accounting?
- Q 1.21 Explain the basic accounting equation: assets = liabilities + equity. In terms of owners, (1) distributions to owners, (2) revenues, (3) expenses, (4) gains, (5) losses, and (6) comprehensive income.
- Q 1.22 What are the four basic assumptions underlying GAAP?
- Q 1.23 What is the going concern assumption?
- Q 1.24 Explain the periodicity assumption.
- Q 1.25 What is the cost principle? Explain the cost principle.
- Q 1.26 What are two important reasons to base the valuation of assets and liabilities on their historical cost?
- Q 1.27 Describe the two criteria that must be satisfied before revenue can be recognized.
- Q 1.28 What are the two different approaches to implementing the matching principle? Give an example of an expense that is recognized under each approach.
- Q 1.29 In addition to the financial statements, what other information is subject to the basic financial assumptions? What are some other ways to disclose financial information to external users?

BRIEF EXERCISES

BE 1.1
Financial accounting

1

BE 1.2
Sources of GAAP

1

BE 1.3
Financial statement elements

1

BE 1.4
Basic assumptions and principles

1

BE 1.5
Basic assumptions and principles

1

Cash flows during the first year of operations for the Harmon-Kardon Consulting Company were as follows: Cash collected from customers, \$344,000; Cash paid for rent, \$46,000; Cash paid to employees for services rendered during the year, \$ 20,000; Cash paid for utilities, \$30,000; Cash paid for advertising, \$10,000; Cash paid for depreciation, \$10,000; Cash paid for interest on a loan, \$10,000; Cash paid for dividends, \$10,000; Cash paid for income taxes, \$10,000; Cash paid for other expenses, \$10,000. Calculate the company's net income for the year.

Identify the issuing organization in each of the following types of pronouncements: (a) Financial Reporting Principles, (b) Industry Accounting Journal, and (c) Statements of Financial Accounting Standards.

For each of the following items, identify the appropriate financial statement element or elements: (1) probable future sacrifices of economic benefits, (2) probable future economic benefits derived by the company, (3) reduction of assets from ongoing project activities, (4) decrease in equity from nonreciprocal or incidental transfers.

Listed below are several statements that relate to financial accounting and reporting. Identify the basic assumption or principle that is violated and explain how it applies to the statement.

1. Global Satellite Radio Inc. files its annual and quarterly financial statements with the SEC.
2. The president of Applebee's International, Inc. travels on the corporate jet for business purposes only, and does not use the jet for personal use.
3. Jackson Manufacturing does not recognize revenue for unsold merchandise even though the merchandise has been shipped.
4. Lady Jane Enterprises depreciates the cost of equipment over their useful lives.

Identify the basic assumption or financial accounting principle that was violated in each of the following situations.

1. Astro Turt Company recognizes an expense over 10 years when in the period the principle is manufactured.
2. Mel'loud 'ing Company records a patent that it purchased three years ago for \$2 million. The controller recently concluded the patent to its approximate market value of \$4 million.
3. Phos, Company is the most popular company in the world. It has a large number of employees and a large number of customers. It has a large number of employees and a large number of customers. It has a large number of employees and a large number of customers.

BE 1-6

Basic assumptions and principles

- LOs through LO8

For each of the following situations, (1) indicate whether you agree or disagree with the financial reporting practice employed and (2) state the basic assumption, pervasive principle, or accounting principle that is applied (if you agree), or violated (if you disagree).

- Winston Corporation did not disclose that it was the defendant in a material lawsuit because the trial was still in progress.
- Adrian Semiconductor Corporation files quarterly and annual financial statements with the SEC.
- Helium Pharmaceuticals paid rent on its office building for the next two years and charged the entire expenditure to rent expense.
- Rockville Engineering records revenue only after products have been shipped, even though customers pay Rockville 30% of the sales price in advance.

EXERCISES

An alternate exercise and problem set is available on the test website: www.mhhe.com/applacct4

E 1-1

Accrual accounting

- LO1

Below are several transactions that took place during the first two years of operations for the law firm of Pate, Pate, and Rity.

| | Year 1 | Year 2 |
|--|-----------|-----------|
| Amounts billed to customers for services rendered | \$ 70,000 | \$220,000 |
| Cash collected from customers | 160,000 | 90,000 |
| Cash disbursements: | | |
| Purchase of insurance policy | 60,000 | 0 |
| Salaries paid to employees for services rendered during the year | 90,000 | 60,000 |
| Utilities | 30,000 | 40,000 |

In addition, you learn that the company incurred utility costs of \$35,000 in year one, that there were no liabilities at the end of year two, no uncollected and debts on receivables, and that the insurance policy covers a three-year period.

Required:

- Calculate the net operating cash flow for years 1 and 2.
- Prepare an income statement for each year (format as illustrated on page 6) according to the accrual accounting method.
- Determine the amount of receivables from customers that the company would show on its year 1 and year 2 balance sheets prepared according to the accrual accounting method.

E 1-2

Accrual accounting

- LO2

Below are several transactions that took place during the second two years of operations for JPC Consulting.

| | Year 2 | Year 3 |
|--|-----------|-----------|
| Amounts billed to customers for services rendered | \$150,000 | \$450,000 |
| Cash collected from credit customers | 160,000 | 400,000 |
| Cash disbursements: | | |
| Payment of rent | 80,000 | 0 |
| Salaries paid to employees for services rendered during the year | 140,000 | 160,000 |
| Travel and entertainment | 30,000 | 40,000 |
| Advertising | 15,000 | 35,000 |

In addition, you learn that the company incurred advertising costs of \$25,000 in year 2, wrote the advertising agency \$5,000 at the end of year 3, and there were no liabilities at the end of year 3. Also, there were no uncollected and debts on receivables, and the rent payment was for a two-year period, year 2 and year 3.

Required:

- Calculate accrual net income for both years.
- Determine the amount due the advertising agency that would be shown as a liability on the RPO's balance sheet at the end of year 3.

E 1-3

Sources of GAAP

- LO3

Different organizations historically and currently have issued various pronouncements that constitute the body of generally accepted accounting principles. Presented below are some of these organizations as well as various authoritative pronouncements. Match each organization with the one or more pronouncement(s) with which it is associated.

Organization

1. Accounting Principles Board
2. Financial Accounting Standards Board
3. Securities and Exchange Commission
4. Committee on Accounting Procedures
5. AICPA

Pronouncements

- a. Statements of Financial Accounting Concepts
- b. Financial Accounting Standards
- c. Accounting Research Bulletins
- d. Statements of Financial Accounting Standards
- e. APB Opinions
- f. Financial Accounting Guides
- g. Technical Bulletins

1. The process of establishing GAAP

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1. Financial Accounting Standards Board
2. Securities and Exchange Commission
3. Institute of Management Accountants
4. Association of Investment Management and Research

1. The process of establishing GAAP
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13. The process of establishing GAAP

| List A | List B |
|----------------------------------|---|
| 1. Predictive value | a. Dependent on equity resulting from transfers to owners |
| 2. Relevance | b. Requires consideration of the costs and values of information |
| 3. Fairness | c. Important for making inter-firm comparisons |
| 4. Fairness of earnings | d. Applying the same accounting practices over time |
| 5. Fairness of value | e. Along with relevance, a primary decision-specific quality |
| 6. Reliability | f. Agreement between a measure and the phenomenon it purports to represent |
| 7. Gain | g. Information is available prior to the decision |
| 8. Representational faithfulness | h. Pertains to one decision at hand |
| 9. Representational accuracy | i. Implying skepticism among different measures, implying skepticism among different measures, implying skepticism among different measures |
| 10. Fairness | j. The process of acquiring information from transactions |
| 11. Fairness of value | k. The process of acquiring information from transactions |
| 12. Fairness of value | l. The process of acquiring information from transactions |
| 13. Fairness of value | m. The process of acquiring information from transactions |
| 14. Fairness of value | n. The process of acquiring information from transactions |
| 15. Fairness of value | o. The process of acquiring information from transactions |
| 16. Fairness of value | p. The process of acquiring information from transactions |

17. The process of establishing GAAP

18. The process of establishing GAAP

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- c. Management reports to stockholders regularly refer to new projects undertaken, but the financial statements never report project results.
- d. Financial statements include property with a carrying amount increased by management's estimate of market value.

According to *Statements of Financial Accounting Concepts*, which of the following is an assumption of

| | Reliability | Relevance |
|----|-------------|-----------|
| a. | Yes | Yes |
| b. | Yes | No |
| c. | No | Yes |
| d. | No | No |

3. According to the FASB conceptual framework, predictive value is an ingredient of

| | Relevance | Reliability |
|----|-----------|-------------|
| a. | No | No |
| b. | Yes | Yes |
| c. | Yes | No |
| d. | No | Yes |

4. According to the FASB conceptual framework, earnings

- a. Are the same as comprehensive income.
- b. Exclude certain gains and losses that are included in comprehensive income.
- c. Include certain gains and losses that are excluded from comprehensive income.
- d. Include certain losses that are excluded from comprehensive income.

5. According to the FASB conceptual framework, which of the following relates to both relevance and reliability?

| | Consistency | Verifiability |
|----|-------------|---------------|
| a. | Yes | Yes |
| b. | Yes | No |
| c. | No | Yes |
| d. | No | No |

E 1-8

Basic assumptions, principles, and constraints

LO 1 through LO 6

Listed below are several terms and phrases used with basic assumptions, underlying principles, and constraints. Pair each item from List A by letter with the item from List B that is most appropriately associated with it.

| List A | List B |
|-------------------------------|---|
| 1. Matching principle | a. The principle is separate from the owners and other entities. |
| 2. Conservatism | b. A form of conservatism is the dollar. |
| 3. Historical cost principle | c. The view of continuous profitability. |
| 4. Materiality | d. Record expenses in the period that related revenues are recognized. |
| 5. Realization principle | e. The original transaction value upon recognition. |
| 6. Going concern assumption | f. All information that could affect decisions should be reported. |
| 7. Monetary unit assumption | g. The life of an enterprise can be divided into artificial time periods. |
| 8. Economic entity assumption | h. Criteria usually established at point of sale. |
| 9. Full-disclosure principle | i. Concerns the relative size of an item and its effect on decisions. |

E 1-9

Basic assumptions and principles

LO 1 through LO 6

Listed below are several statements that relate to financial accounting and reporting. Identify the basic assumption, underlying principle, or pervasive constraint that applies to each statement.

- Jim Murley is the sole owner of Murley's Appliances. Jim borrowed \$100,000 to buy a new home to be used as his personal residence. This liability was not recorded in the records of Murley's Appliances.
- Alpha Computer Inc., distributes an annual report to its shareholders.
- DeWitt-Packard Corporation depreciates machinery and equipment over their useful lives.
- Crosby Company lists land on its balance sheet at \$1,200,000, its original purchase price, even though the land has current market value of \$321,000.
- Harveywell Corporation records revenue when products are delivered to customers, even though the cash has not yet been received.
- Equilibrium values are not normally reported in financial statements even though many companies do so as a matter of course.
- MM Corporation, a multinational drug company, purchased some small boats at a cost of \$800. Even though the boats will be used for a number of years, the company recorded the purchase as an expense.

E 1 Q

Basic assumptions and principles

• 17 Q3

E

Basic assumptions and principles

• 106 through 108

E 12

Basic assumptions, principles, and constraints

• 106 through 108

E 4 Q3

Multiple choice: correct statements, basic assumptions, principles

• 106 through 108

Identify the basic assumption or basic accounting principle that was violated in each of the following situations.

1. Patel Patti Company purchased land two years ago at a price of \$250,000. Because the value of the land has appreciated to \$400,000, the company has valued the land at \$400,000 in its recent financial statements.
2. Apple Corporation has not prepared financial statements for external users for over three years.
3. The Kluge Company will not record revenue from a sale of its products until it is sure the sale is complete.
4. Jane Smith is the sole owner of a company called Hardware City. The company recently paid a \$50 utility bill for North's personal residence and recorded it as a business expense.
5. Golden Books Company purchases a large printing machine for \$1,000,000 (a material amount) and recorded the purchase as an expense.
6. Ace Appliances Company is involved in a major lawsuit (which has not yet been settled by some of its employees in the manufacturing plant). The company is being sued for \$2,000,000, a material amount, and is not recording. The sale was not disclosed in the prior period financial statements because management has not reached a decision.

For each of the following situations, indicate whether you agree or disagree with the financial reporting practice employed and state the basic assumption, pervasive constraint, or accounting principle that is applied if you agree or disagree. If you disagree.

1. Wagner Corporation adjusted the valuation of all assets and liabilities to reflect changes in the purchasing power of the dollar.
2. Spenser Oil Company changed its method of accounting for oil and gas exploration costs from successful efforts to full cost. No mention of the change was included in the financial statements. The change had a material effect on Spenser's financial statements.
3. Ayrone Manufacturing Company purchased machinery having a five-year life. The cost of the machinery is being expensed over the life of the machinery.
4. Radson Corporation purchased equipment for \$100,000 at a liquidation sale of a competitor. Because the equipment was worth \$200,000, Radson valued the equipment in its subsequent balance sheet at \$200,000.
5. Davis Bicycle Company received a large order for the sale of 100 bicycles at \$100 each. The customer paid Davis the entire amount of \$10,000 on March 3. However, Davis did not record any revenue until April 1, the date the bicycles were delivered to the customer.
6. Cognate Corporation purchased two small sailboats at a cost of \$32,000. The cost of the sailboats was expensed even though they had a three-year estimated useful life.
7. Esquire Company purchases financial statements to external users every three years.

Underline the basic assumption, underlying principle, and constraint discussed in this chapter.

- | | |
|------------------------------|------------------------------|
| a. Going concern assumption | b. Full disclosure principle |
| c. Reliability assumption | d. Cost effectiveness |
| e. Monetary unit assumption | f. Materiality |
| g. Historical cost principle | h. Conservatism |
| i. Realization principle | |

Underline the assumption, principle, or constraint that applies to each statement or phrase below.

Revenue is recognized only after certain criteria are satisfied.

- A situation that could affect decision making should be reported.
- Cause-and-effect relationship between revenues and expenses.
- The basis for measurement of money assets and liabilities.
- Related to the qualitative characteristic of timeliness.
 - A company's assets are recorded at their cost.
- The benefits of providing accounting information should exceed the cost of doing so.
- A consequence is that GAAP will not be followed in all situations.
- A qualitative characteristic of financial reporting is that it is useful for some user-making decisions.
- Assume the cost of a product is \$100.
- A situation causes a violation of the assumption.

Determine the response that best conveys the following sentences or questions.

1. The primary objective of financial reporting is to provide information
 - a. About a firm's economic resources and obligations
 - b. Useful in predicting future cash flows
 - c. Concerning the changes in managers' position resulting from the income-producing efforts of the firm
 - d. About a firm's financial and investing activities

7. *Elements of Financial Accounting Concepts* issued by the FASB
 - a. Represented VAP
 - b. Have been superseded by SFASs
 - c. Are subject to approval of the SEC
 - d. Identify the conceptual framework within which accounting standards are developed
8. In general, revenue is recognized as earned when the earning process is virtually complete and
 - a. The sales price has been collected
 - b. A purchase order has been received
 - c. There is reasonable certainty as to the collectibility of the asset to be received
 - d. A contract has been signed
9. In accounting, the most common order of measurement is concerned with
 - a. Classification
 - b. Recognition principle
 - c. Full disclosure
 - d. Matching principle
10. The primary objective of the matching principle is to
 - a. Permit full disclosure
 - b. Record expenses in the period that related revenues are recognized
 - c. Provide true information in financial statements
 - d. Promote comparability between financial statements of different periods
11. The separate entity assumption states that, in the absence of contrary evidence, all entities will survive indefinitely
 - a. True
 - b. False

E 1-58

Multiple choice (CMA exam) concepts

- 10b

The following questions dealing with the conventions and theoretical structure of financial accounting are adapted from questions that previously appeared on the Certified Management Accountant (CMA) examination. The CMA designation sponsored by the Institute of Management Accountants (www.ima.org) provides the student with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

1. Accounting standards setting in the U.S. is
 - a. Done primarily by the Securities and Exchange Commission
 - b. Done primarily by the public sector
 - c. The responsibility of the public sector
 - d. Done primarily by the International Accounting Standards Committee
2. Reliability is determined by meeting all of the
 - a. Determining the revenue first, then determining the costs incurred in earning that revenue
 - b. The and getting the same income on the same basis from different periods
 - c. Similar results being obtained by both the accountant and an independent party using the same measurement methods
 - d. The disclosure of all facts that may influence the judgment of an informed reader
3. Recognized in the process of formally recording and reporting an item in the financial statements. In order for a revenue item to be recognized, it must be all of the following except
 - a. Measurable
 - b. Relevant
 - c. Material
 - d. Realized or realizable

BROADEN YOUR PERSPECTIVE



Wagner Case
The development of accounting standards

E 1-59

Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You will also work with other students, integrate what you've learned, apply it to real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

In 1914 Congress created the Securities and Exchange Commission (SEC) and gave the commission the power and responsibility for setting accounting and reporting standards in the United States.



Research Case 1.2 Accessing SEC information through the internet

• 70

Research Case 1.3 Accessing FASB information through the internet

• 74

Research Case 1.4 Accounting standards in China

• 80

Communication Case 1.5 Relevance and reliability

• 84

Required

1. Explain the relationship between the SEC and the various private sector standard-setting bodies that have since 1933 been delegated the responsibility for setting accounting standards.
2. Can you think of any reasons why the SEC has delegated this responsibility rather than set standards directly?

Internet access to the World Wide Web has provided a wealth of information accessible with non-personal computers. Many chapters in this text contain End World issues that require you to access the web to research an accounting issue. The purpose of this case is to introduce you to the Internet home page of the Securities and Exchange Commission (SEC) and its EDGAR database.

Required

1. Access the SEC home page on the Internet. The web address is www.sec.gov.
2. Choose the sublink "About the SEC." What are the two basic objectives of the 1933 Securities Act?
3. Return to the SEC home page and select "EDGAR." Describe the contents of the database.

The purpose of this case is to introduce you to the information available on the website of the Financial Accounting Standards Board (FASB).

Required

Access the FASB home page to the Internet. The web address is www.fasb.org. Answer the following questions:

1. Describe the mission of the FASB.
2. Who are the current Board members? Briefly describe their backgrounds.
3. How are topics added to the FASB's established agenda?
4. How many standards have been issued by the FASB? What topic is addressed in the most recently issued standard?
5. How many Exposure Drafts are currently outstanding? What topics do they address?

Economic reforms in the People's Republic of China are causing that nation to move toward a market-driven economy. China's accounting practices must also change to accommodate the influx of potential investment. In an article entitled "Institutional Factors Influencing China's Accounting Reforms and Standards," Professor Bing Xiang analyzes the changes in the accounting environment of China during the recent economic reforms and their implications for the development of accounting reforms.

Required

1. In your library or from some other source, locate the individual article in *Accounting Horizons*, June 1996.
2. Briefly describe the economic reforms that led to the need for increased external financial reporting in China.
3. Consistency with International Accounting Standards was specified as an overriding objective in formulating China's accounting standards. What is the author's opinion of this objective?

Some theorists contend that companies that cause pollution should report the economic cost of that pollution to income statements. They argue that such companies are indirectly subsidized as the cost of pollution is borne by society while only production costs (and perhaps municipal pollution taxes) are shown in the income statement. Thus, the product sells for less than would be necessary if all costs were included.

Another view is that the FASB is considering a standard to include the social costs of pollution in the income statement. The process would require considering both relevance and reliability of the information produced by the new standard. Your instructor will divide the class into two or six groups depending on the size of the class. The mission of your group is to explain how the concepts of relevance and reliability relate to this issue.

Required

Each group member should consider the question independently and draft a tentative answer prior to the next class for which the case will be discussed.

In class, each group will meet for 10 to 15 minutes in different areas of the classroom. During this meeting, group members will take turns sharing their arguments for the purpose of arriving at a single group statement.

After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group into a common answer to the question.

Assignment Case 1-2

Accounting standards setting

• 10

Ethics and the auditor's responsibility

• 34

Assignment Case 1-3

Financial statement characteristics

• 10

Assignment Case 1-9

GAAP comparison and the auditor's audit

• 34, 35

Assignment Case 1-10

Cost-effectiveness

• 10

Assignment Case 1-11

The matching principle

• 10

Assignment Case 1-12

The matching principle

• 10

One of your friends is a financial analyst for a major stock brokerage firm. Recently she indicated to you that she had read an article in a widely business magazine that alluded to the political process of establishing accounting standards. She had always believed that accounting standards were established by determining the approach that conceptually best reflected the economics of a transaction.

Required:

Write a one- to two-page article for a business journal explaining what is meant by the political process for establishing accounting standards. Be sure to include in your article a discussion of the need for the FASB to balance accounting considerations and economic consequences.

It is the responsibility of management to apply accounting standards when communicating with investors and creditors through financial statements. Auditing, on the other hand, serves as an independent intermediary to help ensure that management has in fact appropriately applied GAAP in preparing the company's financial statements. Auditors examine auditee financial statements to express a professional, independent opinion. The opinion reflects the auditor's assessment of the statements' fairness, which is determined by the extent to which they are prepared in conformity with GAAP.

Some feel that it is impossible for an auditor to give an independent opinion on a company's financial statements because the auditors fees for performing the audit are paid by the company. In addition to the audit fee, quite often the audited performs other services for the company such as preparing the company's internal tax returns.

Required:

How might an auditor's ethics be challenged while performing an audit?

Generally accepted accounting principles do not require companies to disclose forecasts of any financial variables to external users. A friend, who is a finance major, is puzzled by this fact and asks you to explain only such relevant information is not provided to investors and creditors to help them predict future cash flows.

Required:

Explain to your friend why this information is not routinely provided to investors and creditors.

Mary McQuane is trying to decide how to invest her money. A friend recommended that she buy the stock of one of two corporations and suggested that she should compare the financial statements of the two companies before making a decision.

Required:

- Do you agree that Mary will be able to compare the financial statements of the two companies?
- What role does the auditor play in ensuring comparability of financial statements between companies?

Assignment Case 1-13
Cost-effectiveness
The concept of cost-effectiveness is a key characteristic of accounting information. Cost-effectiveness refers to the ability of accounting information to be used effectively to make decisions. Accounting information is considered cost-effective if it is useful in making decisions.

Required:

- What is the best method for measuring the cost-effectiveness of accounting information?
- What is the best method for measuring the cost-effectiveness of accounting information?
- What is the best method for measuring the cost-effectiveness of accounting information?

A new client, the Wolf Company, asks your advice concerning the point in time that the company should recognize revenue from the rental of its office buildings. Renters usually pay rent on a quarterly basis at the beginning of the quarter. The owners contend that the critical event that motivates revenue recognition should be the date the cash is received from renters. After all, the money is in hand and is very seldom returned.

Required:

- Describe the two criteria that must be satisfied before revenue can be recognized.
- Do you agree or disagree with the position of the owners of Wolf Company? Support your answer.

Revenues measure the accomplishments of a company during the period. Expenses are then matched with revenues to produce a periodic measure of performance called net income.

Required:

- Explain what is meant by the phrase *matched with revenues*.
- Describe the four approaches used to implement the matching principle and label them 1 through 4.
- For each of the following, identify which matching approach should be used to recognize the cost as a cost:
 - The cost of producing a product
 - The cost of advertising
 - The cost of doubtful rent on the office building
 - The salary of an office employee
 - Depreciation on an office building

Read Wiley: Case 4.13
 Items to disclose
 Table

4.13.13

Selected financial statements found in the annual report of Dell Inc. follow. Use these statements to answer the following questions.

Required:

1. What company's stock you own in what date?
2. What amounts did Dell report for the following items for the fiscal year ended January 30, 2004?
 a. Total assets
 b. Total liabilities
 c. Total stockholders' equity
3. How many shares of common stock did the company have issued on January 30, 2004?
4. Why do you think Dell reports are better than most other public companies?

DELL INC.
Consolidated Balance Sheets
 (\$ in millions)

| | January 30, 2004 | January 31, 2003 |
|--|------------------|------------------|
| Assets | | |
| Cash and cash equivalents | \$ 3,177 | \$ 4,632 |
| Short-term investments | 1,075 | 2,111 |
| Accounts receivable, net | 3,671 | 2,586 |
| Inventory | 1,100 | 1,000 |
| Other | 5,150 | 1,100 |
| Total assets | 13,173 | 11,429 |
| Liabilities and Stockholders' Equity | | |
| Accounts payable | \$ 2,100 | \$ 2,000 |
| Accrued liabilities | 1,100 | 1,100 |
| Long-term debt | 5,000 | 5,000 |
| Other long-term liabilities | 1,100 | 1,100 |
| Commitments and contingent liabilities (Note 7) | | |
| Total liabilities | 9,300 | 9,200 |
| Stockholders' equity | | |
| Preferred stock and capital in excess of \$1.00 par value | | |
| Common stock and capital in excess of \$1.00 par value | | |
| Authorized 7,000 shares; issued 2,111 and 2,111 respectively | 6,111 | 6,111 |
| Treasury stock, at cost: 65 and 65 shares, respectively | (65,339) | (65,339) |
| Retained earnings | 6,137 | 6,137 |
| Other comprehensive loss | (83) | (83) |
| Other | 52 | 52 |
| Total stockholders' equity | 6,107 | 6,107 |
| Total liabilities and stockholders' equity | \$ 15,407 | \$ 15,316 |

Consolidated Statements of Income
 (\$ in millions, except per share amounts)

| | Fiscal Year Ended | |
|---|-------------------|------------------|
| | January 30, 2004 | January 31, 2003 |
| Net revenue | \$4,444 | \$35,404 |
| Cost of revenue | <u>33,892</u> | <u>29,055</u> |
| Gross margin | <u>7,552</u> | <u>6,349</u> |
| Operating expenses: | | |
| Selling, general and administrative | 3,544 | 3,090 |
| Research, development and engineering | 464 | 488 |
| Special charges | — | — |
| Total operating expenses | <u>4,008</u> | <u>3,505</u> |
| Operating income | 3,544 | 2,844 |
| Investment and other income (loss), net | 100 | 183 |
| Income before income taxes | 3,724 | 3,027 |
| Income tax provision | <u>1,079</u> | <u>905</u> |
| Net income | <u>\$ 2,645</u> | <u>\$ 2,122</u> |
| Earnings per common share: | | |
| Basic | <u>\$ 1.03</u> | <u>\$ 0.82</u> |
| Diluted | <u>\$ 1.01</u> | <u>\$ 0.80</u> |
| Weighted-average shares outstanding: | | |
| Basic | \$ 2,563 | \$ 2,584 |
| Diluted | \$ 2,609 | \$ 2,644 |

2

CHAPTER

Review of the Accounting Process

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Analyze business events—transactions—and record their effects on a company's financial position using the accounting equation format.
- LO2 Record transactions using the general journal format.
- LO3 Post the effects of journal entries to T-accounts and prepare an unadjusted trial balance.
- LO4 Identify and describe the different types of adjusting entries.
- LO5 Determine the required adjustments, record adjusting journal entries in general journal format, and prepare an adjusted trial balance.
- LO6 Describe the four basic financial statements.
- LO7 Explain the closing process.
- LO8 Convert from cash basis net income to accrual basis net income.

FINANCIAL REPORTING CASE



Engineering Profits

After graduating from college last year, two of your engineering-majors friends started an Internet consulting practice. They began operations on July 1 and felt they did quite well during their first year. Now they would like to borrow \$20,000 from a local bank to buy new computing equipment and office furniture. To support their loan application, the friends presented the bank with the following income statement for their first year of operations ending June 30:

| | | |
|--------------------|----------|-----------------|
| Consulting revenue | | \$58,000 |
| Operating expenses | | |
| Salaries | \$32,000 | |
| Rent | 8,000 | |
| Supplies | 4,800 | |
| Utilities | 3,400 | |
| Advertising | 5,200 | 14,000 |
| Net income | | <u>\$16,000</u> |

The bank officer noticed that there was no depreciation expense in the income statement and has asked your friends to revise the statement after making year-end adjustments. After agreeing to help, you discover the following information:

- The friends paid \$80,000 for equipment when they began operations. They think the equipment will be useful for five years.
- They pay \$500 a month to rent office space. In January, they paid a full year's rent in advance. This is included in the \$8,000 rent expense.
- Included in consulting revenue is \$3,000 they received from a customer in June as a deposit for work to be performed in August.

By the time you finish this chapter, you should be able to respond appropriately to the questions listed at the end of the chapter. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

- What purpose do adjusting entries serve? (page 62)
- What year-end adjustments are needed to revise the income statement? Did your friends do as well their first year as they thought? (page 62)

A solid foundation is vital to a sound understanding of intermediate accounting. So, we review the fundamental accounting process here to serve as a framework for the new concepts you will learn in this course.

Chapter 1 introduced the theoretical structure of financial accounting and the environment within which it operates. In this chapter, we focus on the accounting process and its relevance to the business decision-making process. We begin by discussing the process of generating financial statements and related notes. In this chapter we review the purposes served by the financial statements and the accounting process. We then discuss the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process.

Chapter 2 introduces the accounting process and its relevance to the business decision-making process. We begin by discussing the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process.

Chapter 3 introduces the accounting process and its relevance to the business decision-making process. We begin by discussing the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process.

Chapter 4 introduces the accounting process and its relevance to the business decision-making process. We begin by discussing the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process. We then discuss the accounting process and its relevance to the business decision-making process.

The Basic Model

The basic model of the accounting system is designed to identify the economic events that can be expressed in monetary terms. The accounting system is designed to identify the economic events that can be expressed in monetary terms. The accounting system is designed to identify the economic events that can be expressed in monetary terms.

Economic events can be classified as either external events or internal events. External events are those events that affect the company and its relationship with the outside world. Internal events are those events that affect the company's internal operations.

On the other hand, internal events directly affect the financial position of the company. These events are those events that affect the company's internal operations. These events are those events that affect the company's internal operations.

THE ACCOUNTING EQUATION

The accounting equation is a fundamental principle of accounting. It states that the total assets of a company are equal to the total liabilities and owners' equity.

$$\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$$

*There are many economic events that affect a company's internal operations and are not recorded. For example, when the Federal Reserve changes the discount rate, it is an important economic event that can affect the company in many ways, but it is not recorded by the company.

The elements of the equation were defined in Chapter 1.

This general expression portrays the equality between the total economic resources of an entity (its assets)—shown on the left side of the equation—and the total claims to those resources (liabilities and equity)—shown on the right side. In other words, the resources of an enterprise are provided by creditors or owners.

The equation also implies that each economic event affecting this equation will have a dual effect because resources always must equal claims to those resources. For illustration, consider the events (we refer to these throughout the text as *transactions*) in Illustration 2-1.

Each event or transaction has a dual effect on the accounting equation.

| | | | |
|--|----------|------------------------------|--------------------------------|
| 1 An attorney invested \$50,000 to open a law office. | | | |
| An investment by the owner causes both assets and owners' equity to increase. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$50,000 (cash) | | | \$50,000 (investment by owner) |
| 2 \$40,000 was borrowed from a bank and a note payable was signed. | | | |
| This transaction causes assets and liabilities to increase. The bank loan increases cash and creates an obligation to repay it. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$40,000 (cash) | | + \$40,000 (note payable) | |
| 3 Supplies costing \$3,000 were purchased on account. | | | |
| Buying supplies on credit also increases both assets and liabilities. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$3,000 (supplies) | | + \$3,000 (accounts payable) | |
| 4 Services were performed on account for \$10,000. | | | |
| Items 1, 2, 3, and 4 are revenue and expense transactions. Revenues and expenses (large revenues and gains and losses) are events that cause owners' equity to increase. Expenses and losses (large expenses and losses and outflows of assets for increases in liabilities) cause owners' equity to decrease. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$10,000 (receivables) | | | \$10,000 (revenue) |
| 5 Salaries of \$5,000 were paid to employees. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$5,000 (cash) | | | \$5,000 (expense) |
| 6 \$500 of supplies were used. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$500 (supplies) | | | \$500 (expense) |
| 7 \$1,000 was paid on account to the supplies vendor. | | | |
| This transaction causes assets and liabilities to decrease. | | | |
| Assets | = | Liabilities | + Owners' Equity |
| \$1,000 (cash) | | \$1,000 (accounts payable) | |

ILLUSTRATION 2-1
Transaction Analysis

Each transaction is analyzed to determine its effect on the equation and on the specific financial position elements.

The accounting equation can be expanded to include a column for each type of asset and liability and for each type of change in owners' equity.

As discussed in Chapter 1, owners of a corporation are its shareholders, so owners' equity for a corporation is referred to as shareholders' equity. Shareholders' equity for a corporation arises primarily from two sources: (1) amounts invested by shareholders in the corporation and (2) amounts earned by the corporation (on behalf of its shareholders). These are reported as (1) paid-in capital and (2) retained earnings. Retained earnings equals net income less distributions to shareholders (primarily dividends) since the inception of the corporation. Graphic 2-1 shows the basic accounting equation for a corporation with shareholders' equity expanded to highlight its composition. We use the corporate format throughout the remainder of the chapter.

Owners' equity for a corporation is called shareholders' equity. It is provided by contributions paid in capital or retained earnings.

GRAPHIC 2-1 Accounting Equation for a Corporation

The double-entry system is used to process transactions.

A general ledger is a collection of accounts known as **accounts** used to keep track of the company's financial position elements.

In the double-entry system, **debits** mean the left side of an account and **credits** mean the right side of an account.

Asset increases are entered on the debit side of an account and decreases are entered on the credit side. Liability and equity increases are entered on the credit side and decreases are debited.

statement, we use separate accounts to keep track of the changes in retained earnings caused by revenues, expenses, gains, and losses. The number of accounts depends on the complexity of the company's operations.

An account includes the account title, an account number to aid the processing task, and columns or fields for increases, decreases, the cumulative balance, and the date. For instructional purposes we use **T-accounts** instead of formal ledger accounts. A T-account has space at the top for the account title and two sides for recording increases and decreases.

Account Title

For centuries, accountants have effectively used a system of **debits** and **credits** to increase and decrease account balances in the ledger. Debits merely represent the *left* side of the account and credits the *right* side, as shown below.

Account Title

debit side credit side

Whether a debit or a credit represents an increase or a decrease depends on the type of account. Accounts on the left side of the accounting equation (assets) are *increased* (+) by *debit* entries and *decreased* (–) by *credit* entries. Accounts on the right side of the accounting equation (liabilities and shareholders' equity) are *increased* (+) by *credit* entries and *decreased* (–) by *debit* entries. This arbitrary, but effective, procedure ensures that for each transaction the net impact on the left sides of accounts always equals the net impact on the right sides of accounts.

For example, consider the bank loan in our earlier illustration. An asset, cash, increased by \$40,000. Increases in assets are *debits*. Liabilities also increased by \$40,000. Increases in liabilities are *credits*.

| Assets | | = | Liabilities | | + | Owners' Equity |
|--------|--------|---|---------------|--------|---|----------------|
| Cash | | | Notes Payable | | | |
| debit | credit | | debit | credit | | |
| | | | | 40,000 | | |

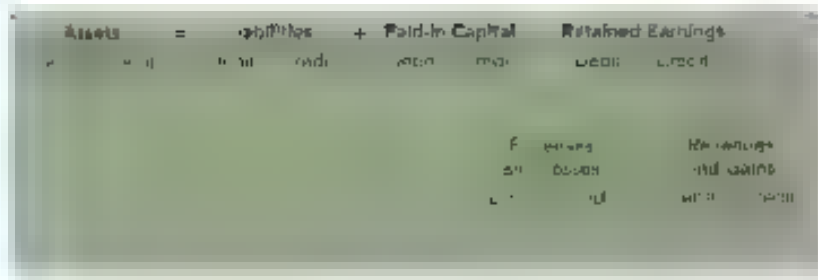
The debits equal the credits in every transaction (dual effect), so both before and after a transaction the accounting equation is in balance.

Prior exposure to the terms debit and credit probably comes from your experience with a bank account. For example, when a bank debits your checking account for service charges, it decreases your account balance. When you make a deposit, the bank credits your account, increasing your account balance. You must remember, however, from the bank's perspective, your bank account balance is a liability—it represents the amount that the bank owes you. There-

ACCOUNT RELATIONSHIPS

All transactions must be recorded in sufficient numbers to increase or decrease the elements of the accounting equation. However, even for a very small company with few transactions, this would become cumbersome. So, most companies use a process called the **double-entry system**. The term *double-entry* refers to the dual effect that each transaction has on the accounting equation.

Elements of the accounting equation are represented by accounts which are contained in a general ledger. Increases and decreases in each element of a company's financial position are recorded in these accounts. A separate account is maintained for individual assets and liabilities, retained earnings, and paid-in capital. Also, to accumulate information needed for the income



Graphic 2-2

Accounting Equation,
Debits and Credits,
Increases and
Decreases

ture, when the bank debits your account, it is decreasing its liability. When the bank credits an account, it is increasing its liability.

Graphic 2-2 illustrates the relationship among the accounting equation, debits and credits, and the increases and decreases in financial position elements.

Notice that increases and decreases in retained earnings are recorded *indirectly*. For example, an expense represents a decrease in retained earnings, which requires a debit. That debit, however, is recorded in an appropriate expense account rather than in retained earnings itself. This allows the company to maintain a separate record of expenses incurred during an accounting period. The debit to retained earnings for the expense is recorded in a closing entry (reviewed later) at the end of the period, only after the expense total is reflected in the income statement. Similarly, an increase in retained earnings for a dividend is recorded indirectly with a credit to a revenue account, which is later recorded in a credit to retained earnings.

The general ledger accounts serve as control accounts. Subsidiary accounts associated with a particular general ledger control account are maintained in separate subsidiary ledgers. For example, a subsidiary ledger for accounts receivable contains individual account receivable accounts for each of the company's credit customers. Subsidiary ledgers are discussed in more detail in Appendix 2C.

Each general ledger account can be classified as either *permanent* or *temporary*. Permanent accounts represent assets, liabilities, and shareholders' equity at a point in time. Temporary accounts represent changes in the retained earnings component of shareholders' equity for a corporation caused by revenue, expense, gain, and loss transactions. It would be cumbersome to record each revenue/expense, gain/loss transaction directly into the retained earnings account. The different types of events affecting retained earnings should be kept separate to facilitate the preparation of the financial statements. The balances in these temporary accounts are periodically, usually once a year, closed or zeroed out, and the net effect is recorded in the permanent retained earnings account. The temporary accounts need to be recorded not to measure income on an annual basis. This closing process is discussed in a later section of this chapter.

Permanent accounts
reflect the financial position
elements of the
accounting equation.

Temporary accounts
keep track of the changes in the retained
earnings component of
shareholders' equity.

The Accounting Processing Cycle

Now that we have reviewed the basics of the double-entry system, let's look closer at the process used to identify, analyze, record, and summarize transactions and prepare financial statements. This section deals only with *external transactions*, those that involve an exchange transaction with another entity. Internal transactions are discussed in a later section.

The 10 steps in the accounting processing cycle are listed in Graphic 2-3.

We now discuss these steps in order.

The first step in the process is to *identify* external transactions affecting the accounting equation. An accountant usually does not directly witness business transactions. A mechanism is needed to relay the essential information about each transaction to the accountant. Source documents such as sales invoices, bills from suppliers, and cash register tapes serve this need.

These source documents usually identify the date and nature of each transaction, the participating parties, and the monetary terms. For example, a sales invoice identifies the date of

STEP Obtain
information about
transactions from
source documents

CHAPTER 2-3**The Accounting Processing Cycle****The Steps of the Accounting Processing Cycle**

1. The accounting information system receives information from source documents.
2. Analyze the transaction.
 - a. Prepare a journal entry.
 - b. Post from the journal to the ledger.
 - c. Prepare an unadjusted trial balance.
 - d. Record adjusting entries.
 - e. Prepare an adjusted trial balance.
 - f. Prepare financial statements.
 - g. Close the books.
3. Prepare a post-closing trial balance.

STEP 2: Analyze the transaction

sale, the customer, the specific goods sold, the dollar amount of the sale, and the payment terms. With this information, the second step in the processing cycle, transaction analysis, can be accomplished. Transaction analysis is the process of reviewing the source documents to determine the dual effect on the accounting equation and the specific elements involved.

This process is summarized in Illustration 2-2 for the seven transactions described previously in Illustration 2-1.

STEP 3: Record the transaction in a journal

The third step in the process is to record the transaction in a journal. Journals provide a chronological record of all economic events affecting a firm. Each journal entry is expressed in terms of equal debits and credits to accounts affected by the transaction being recorded. Debits and credits represent increases or decreases to specific accounts, depending on the type of account, as explained earlier. For example, for credit sales, a debit to accounts receivable and a credit to sales revenue is recorded in a sales journal.

A sales journal is an example of a special journal used to record a repetitive type of transaction. Appendix 2C discusses the use of special journals in more depth. In this chapter and throughout the text, we use the general journal format to record all transactions.

LO2

Any type of transaction can be recorded in a general journal. It has a place for the date of the transaction, a place for account titles, account numbers, and supporting explanations, a place for debit entries, and a place for credit entries. A simplified journal entry is used throughout the text that lists the account titles to be debited and credited and the dollar amounts. A common convention is to list the debited accounts first, under the credited accounts, and use the first of two columns for the debit amounts and the second column for the credit amounts. For example, the journal entry for the bank loan in Illustration 2-1, which requires a debit to cash and a credit to note payable, is recorded as follows:

Journalize the following cash and accounting entries by date.

| | | |
|--------------|--------|--------|
| Cash | 40,000 | |
| Note payable | | 40,000 |

STEP 4: Post from the journal to the general ledger accounts

Step 4 is to periodically transfer or post the debit and credit information from the journal to individual ledger accounts. Recall that a ledger is simply a collection of all of the company's various accounts. Each account provides a summary of the effects of all events and transactions on that individual account. This process is called posting. Posting involves transferring debits and credits recorded in individual journal entries to the specific accounts affected. As discussed earlier in the chapter, most accounting systems today are computerized, with the journal and ledger kept on disk. For these systems, the journal input information is automatically and instantly posted in the ledger accounts.

These first four steps in the processing cycle are illustrated using the external transactions in Illustration 2-3 which occurred during the month of July 2006, the first month of operations for Dress Right Clothing Corporation. The company operates a retail store that sells men's and women's clothing. Dress Right is organized as a corporation so owners' equity is classified by source as either paid-in capital or retained earnings.

The local bank requires that Dress Right furnish financial statements on a monthly basis. The transactions listed in the illustration are used to demonstrate the accounting processing cycle for the month of July 2006.

Illustration 2-2 Translating Business Transactions into Accounting Equations and Journal Entries

| Transaction | Transaction Analysis | Accounting Equation | | | Account Entry | |
|--|---|---------------------|-------------------|-------------------|--------------------------|---|
| | | Assets | Liabilities | Owners Equity | | |
| 1. An attorney invests \$50,000 to open a law office. | Assets (cash and owners equity) each increased by \$50,000.
Cumulative balances: Assets (cash) and liabilities (note payable) each increased by \$50,000. | +50,000
50,000 | = | +50,000
50,000 | Cash
50,000 | Owners Equity
50,000 |
| 2. \$40,000 was borrowed from a bank and a note payable was created. | Assets (cash) and liabilities (note payable) each increased by \$40,000.
Cumulative balances: Assets (supplies and liabilities (accounts payable)) each increased by \$3,000.
Cumulative balances: Assets (accounts payable). | 40,000
90,000 | +40,000
40,000 | 50,000 | Cash
50,000
40,000 | Note Payable
40,000 |
| 3. Supplies costing \$3,000 were purchased on account. | Assets (supplies and liabilities (accounts payable)) each increased by \$3,000.
Cumulative balances: Assets (accounts payable). | 3,000
93,000 | +3,000
43,000 | + 50,000 | Supplies
3,000 | Accounts Payable
3,000 |
| 4. Services were performed for \$10,000. | Assets (cash and owners equity) each increased by \$10,000.
Cumulative balances: Assets (cash decreased and owners equity decreased) (seller's expense) increased by \$5,000.
Cumulative balances: Assets (supplies) decreased and owners equity decreased (supplies expense) increased by \$500.
Cumulative balances: Assets (cash and liabilities (accounts payable)) each decreased by \$3,000.
Cumulative balances: | 10,000
103,000 | 43,000 | + 60,000 | Accounts Receivable | Owners Equity (Revenue) |
| 5. Salaries of \$5,000 were paid to employees. | Assets (cash decreased and owners equity decreased) (seller's expense) increased by \$5,000.
Cumulative balances: Assets (supplies) decreased and owners equity decreased (supplies expense) increased by \$500.
Cumulative balances: Assets (cash and liabilities (accounts payable)) each decreased by \$3,000.
Cumulative balances: | 5,000
98,000 | 43,000 | + 55,000 | Cash
5,000
40,000 | Owners Equity (Salaries Expense)
5,000 |
| 6. \$500 of supplies were used. | Assets (supplies) decreased and owners equity decreased (supplies expense) increased by \$500.
Cumulative balances: Assets (cash and liabilities (accounts payable)) each decreased by \$3,000.
Cumulative balances: | 500
97,500 | 43,000 | 55,000 | Supplies
500 | Owners Equity (Supplies Expense)
500 |
| 7. \$5,000 was paid on account to the supplier vendor. | Assets (cash and liabilities (accounts payable)) each decreased by \$5,000.
Cumulative balances: | 5,000
92,500 | 48,000 | 55,000 | Cash
5,000
40,000 | Accounts Payable
5,000
3,000 |

ILLUSTRATION 2-3
External Transactions
for July 2006

| | |
|--------|--|
| July 1 | Two individuals each invested \$50,000 in the corporation. Each investor was issued 3,000 shares of common stock. |
| 1 | Borrowed \$40,000 from a local bank and signed four notes. The first note for \$10,000 + interest requires the payment of principal and 10% interest over six months. The second note for \$10,000 + interest requires the payment of principal and interest over two years. The third note for \$10,000 + interest requires the payment of principal and interest over five years. The fourth note for \$10,000 + interest requires the payment of principal and interest over ten years. |
| 2 | Paid \$24,000 in advance for one year's rent on the store building. |
| 3 | Paid \$2,000 for office furniture and equipment. |
| 4 | Paid \$500 for office supplies. |
| 5 | Paid \$1,000 for office rent. |
| 6 | Paid \$1,000 for office rent. |
| 7 | Paid \$1,000 for office rent. |
| 8 | Paid \$1,000 for office rent. |
| 9 | Paid \$1,000 for office rent. |
| 10 | Paid \$1,000 for office rent. |
| 11 | Paid \$1,000 for office rent. |
| 12 | Paid \$1,000 for office rent. |
| 13 | Paid \$1,000 for office rent. |
| 14 | Paid \$1,000 for office rent. |
| 15 | Paid \$1,000 for office rent. |
| 16 | Paid \$1,000 for office rent. |
| 17 | Paid \$1,000 for office rent. |
| 18 | Paid \$1,000 for office rent. |
| 19 | Paid \$1,000 for office rent. |
| 20 | Paid \$1,000 for office rent. |
| 21 | Paid \$1,000 for office rent. |
| 22 | Paid \$1,000 for office rent. |
| 23 | Paid \$1,000 for office rent. |
| 24 | Paid \$1,000 for office rent. |
| 25 | Paid \$1,000 for office rent. |
| 26 | Paid \$1,000 for office rent. |
| 27 | Paid \$1,000 for office rent. |
| 28 | Paid \$1,000 for office rent. |
| 29 | Paid \$1,000 for office rent. |
| 30 | Paid \$1,000 for office rent. |

For each transaction, source documents provide the necessary information to complete steps two and three in the processing cycle, transaction analysis and recording the appropriate journal entry. Each transaction listed in Illustration 2-3 is analyzed below, preceded by the necessary journal entry.

To record the issuance of common stock

| | | |
|--------------|--------|--------|
| July 1 | | |
| Cash | 60,000 | |
| Common stock | | 60,000 |

This first transaction is an investment by owners that increases an asset, cash, and also increases shareholders' equity. Increases in assets are recorded as debits and increases in shareholders' equity are recorded as credits. We use the paid-in capital account called common stock because stock was issued in exchange for cash paid in.²

To record the borrowing of cash and the signing of notes payable

| | | |
|---------------|--------|--------|
| July 1 | | |
| Cash | 40,000 | |
| Notes payable | | 40,000 |

This transaction creates increases in both cash and the liability, notes payable. Increases in assets are debits and increases in liabilities are credits. The notes require payment of \$10,000 in principal and \$6,300 ($\$10,000 \times 10\% \times \frac{1}{2} = \500) + ($\$10,000 \times 10\% \times 2 \text{ years} = \$2,000$) in interest. However, at this point we are concerned only with the external transaction that occurs when the cash is borrowed and the notes are signed. Later we discuss how the interest is recorded.

To record the payment of one year's rent in advance

| | | |
|--------------|--------|--------|
| July 1 | | |
| Prepaid rent | 24,000 | |
| Cash | | 24,000 |

This transaction decreased cash (a credit) and increased an asset called prepaid rent, which is debited. Prepaid rent is acquired in exchange for cash and is an asset because it represents a future benefit to the company. As we will see later, this asset expires over the one-year rental period.

²For different types of stock see discussion in Chapter 25.

| | | |
|------------------------|-------|-------|
| July 7 | | |
| Furniture and fixtures | 2,000 | |
| Cash | | 2,000 |

To record the purchase of furniture and fixtures.

This transaction increases the asset furniture and fixtures and decreases another asset,

| | | |
|------------------|--------|--------|
| July 8 | | |
| Inventory | 60,000 | |
| Accounts payable | | 60,000 |

To record the purchase of raw materials inventory.

The purchase of merchandise on account is recorded by debiting inventory, an asset, and crediting accounts payable, a liability. It increases an asset and a liability and has no effect on the accounting equation.

The Drexel-Kopitz Clothing Company uses the **perpetual inventory system** to keep track of its merchandise inventory. This system requires that the cost of merchandise purchases be recorded in an asset account. When inventory is sold, the inventory account is debited by the cost of the item sold. The difference in the periodic system is briefly discussed on the next page, and Chapters 8 and 9 cover this topic in inventory in depth.

| | | |
|----------|-------|-------|
| July 8 | | |
| Supplies | 2,000 | |
| Cash | | 2,000 |

To record the purchase of supplies.

The acquisition of supplies is recorded as a debit in the asset account supplies, an increase, and a credit to the asset cash, a decrease. Supplies is recorded as an asset because an expenditure creates benefits.

| | | |
|----------------------------|--------|--------|
| July 8-15 | | |
| Cash | 35,000 | |
| Sales revenue | | 35,000 |
| Cost of goods sold expense | 20,000 | |
| Inventory | | 20,000 |

To record the sale of cash sales and the cost of those sales.

During the month of July, cash sales to customers totaled \$35,000. The company's assets and income rise by this amount as each shareholder's equity is increased by a credit to the temporary account sales revenue.

A debit to the asset inventory decreases and another debit to the expense account cost of goods sold increases. The net effect is to bring up the asset account inventory to the original amount. The cost of goods sold expense equals the cost of the inventory sold. The net effect is to decrease the asset inventory and increase the expense account cost of goods sold. Each of these transactions is recorded as a separate and similar entry.

| | | |
|---------------------|-------|-------|
| July 9 | | |
| Accounts receivable | 3,500 | |
| Sales revenue | | 3,500 |
| Cost of goods sold | 2,000 | |
| Inventory | | 2,000 |

To record a credit sale and the cost of that sale.

This transaction is similar to the debit sale above. The difference is that the asset account accounts receivable is debited instead of cash.

ADDITIONAL CONSIDERATION

Periodic Inventory System

The principal alternative to the perpetual inventory system is the periodic system. This system requires that the cost of merchandise purchases be recorded in a temporary account called purchases. When inventory is sold, no inventory account is not

decreased and cost of goods sold is increased. Cost of goods sold for a period is determined and the inventory account is adjusted only at the end of a reporting period. For example, the purchase of \$60,000 of merchandise on account by Dress Right Clothing is recorded as follows:

| | |
|------------------|--------|
| Debit | credit |
| Accounts payable | 60,000 |

No cost of goods sold entry is recorded when sales are made in the periodic system. At the end of July, the amount of ending inventory is determined, either by means of a physical count of goods on hand or by estimation, to be \$38,000 and cost of goods sold for the month is determined as follows:

| | |
|------------------------|----------|
| Beginning inventory | 0 |
| Plus: Purchases | 60,000 |
| Less: ending inventory | (38,000) |
| Cost of goods sold | 22,000 |

The following journal entry records cost of goods sold for the period and adjusts the inventory account to the actual amount on hand in this case from zero to \$38,000:

| | | |
|--------------------|--------|--------|
| Cost of goods sold | 22,000 | |
| Inventory | 38,000 | |
| Purchases | | 60,000 |

Inventory is discussed in depth in chapters 8 and 9.

To record the receipt of cash from a sale

| | | |
|-------------------------------|-------|-------|
| July 16 | | |
| Cash | 1,000 | |
| Uncollected revenue liability | | 1,000 |

Cash increases by \$1,000 so the cash account is debited. At this point, Dress Right does not recognize revenue even though cash has been received. Recall that the first criterion required for revenue recognition as stated in the realization principle is that the "earnings process is judged to be complete or virtually complete." Dress Right does not own the revenue until it has provided the jewelry. With the use of accruals, that is, the revenue is earned as the contract period expires. In effect, the cash liability is called *uncollected revenue* because it is not yet received and is reduced. This liability represents Dress Right's obligation to provide the use of jewelry to the jewelry store.

To record the payment of cash to a supplier

| | | |
|------------------|--------|--------|
| July 20 | | |
| Accounts payable | 25,000 | |
| Cash | | 25,000 |

The liability is reduced because cash is paid and a liability account payable. Decreases in assets are debited and decreases in liabilities are credited.

To record the payment of cash for services rendered during the first half of the month

| | | |
|------------------|-------|-------|
| July 20 | | |
| Services expense | 5,000 | |
| Cash | | 5,000 |

Expenses were paid for services rendered during the first half of the month. The cash expenditure did not create an asset since no future benefits result. Cash decreases and is credited. Shareholders' equity decreases and is debited. The debit is recorded in the temporary account services expense.

To record receipt of cash from a sale

| | | |
|---------------------|-------|-------|
| July 25 | | |
| Cash | 1,500 | |
| Accounts receivable | | 1,500 |

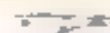


Illustration 2-4 summarizes each of the transactions just discussed as they would appear in a general journal. In addition to the date, account titles, debit and credit columns, the journal also has a column titled *Post. Ref.* (Posting Reference). This usually is a number assigned to the general ledger account that is being debited or credited. For purposes of this illustration, all asset accounts have been assigned numbers in the 100s, all liabilities are 200s, permanent shareholders' equity accounts are 300s, revenues are 400s, and expenses are 500s.

ILLUSTRATION 2-5
General Ledger
Accounts

| Balance Sheet Accounts | | | | | | | | | |
|---------------------------|---------------|-------------|---------------|--------------|------------------------|--------------|-----------|--|--|
| Cash | | | | | Prepaid Rent | | | | |
| 100 | | | | | 130 | | | | |
| July 1 GJ1 | 60,000 | 24,000 | July 1 GJ1 | July 1 GJ1 | 24,000 | | | | |
| 1 GJ1 | 40,000 | 12,000 | 1 GJ1 | | | | | | |
| 4-31 GJ1 | 35,000 | 2,000 | 6 GJ1 | | | | | | |
| 16 GJ1 | 1,000 | 25,000 | 20 GJ1 | | | | | | |
| 25 GJ1 | 1,500 | 5,000 | 26 GJ1 | | | | | | |
| | | 1,000 | 30 GJ1 | | | | | | |
| July 31 Bal. | 66,500 | | July 31 Bal. | 24,000 | | | | | |
| Accounts Receivable | | | | | Inventory | | | | |
| 110 | | | | | 140 | | | | |
| July 9 GJ1 | 3,500 | 1,500 | July 25 GJ1 | July 3 GJ1 | 60,000 | 20,000 | July 4-31 | | |
| | | | | | | 2,000 | 9 GJ1 | | |
| July 31 Bal. | 2,000 | | | July 31 Bal. | 38,000 | | | | |
| Supplies | | | | | Furniture and Fixtures | | | | |
| 125 | | | | | 150 | | | | |
| July 6 GJ1 | 2,000 | | | July 1 GJ1 | 2,000 | | | | |
| July 31 Bal. | 2,000 | | | July 31 Bal. | 12,000 | | | | |
| Accounts Payable | | | | | Notes Payable | | | | |
| 210 | | | | | 220 | | | | |
| July 20 GJ1 | 25,000 | 60,000 | July 2 GJ1 | | 40,000 | July 1 GJ1 | | | |
| | | 35,000 | July 31 Bal. | | 40,000 | July 31 Bal. | | | |
| Unearned Rent Revenue | | | | | | | | | |
| 130 | | | | | | | | | |
| | 1,000 | July 3 GJ1 | | | | | | | |
| Common Stock | | | | | Retained Earnings | | | | |
| 300 | | | | | 310 | | | | |
| | 60,000 | July 1 Bal. | | July 31 Bal. | 1,000 | | | | |
| | 60,000 | | | July 31 Bal. | 1,000 | | | | |
| Income Statement Accounts | | | | | | | | | |
| Sales Revenue | | | | | Cost of Goods Sold | | | | |
| 400 | | | | | 500 | | | | |
| 35,000 | July 4-31 GJ1 | | July 4-31 GJ1 | 20,000 | | | | | |
| 3,500 | 9 GJ1 | | July 9 GJ1 | 2,000 | | | | | |
| 38,500 | July 31 Bal. | | July 31 Bal. | 22,000 | | | | | |
| Salaries Expense | | | | | | | | | |
| 510 | | | | | | | | | |
| July 20 GJ1 | 5,000 | | | | | | | | |
| July 31 Bal. | 5,000 | | | | | | | | |

The ledger accounts also contain a posting reference, usually the page number of the journal in which the journal entry was recorded. This allows for easy cross-referencing between the journal and the ledger accounts and the trial balance.

Step 4 in the processing cycle is to transfer the debit/credit information from the journal to the general ledger accounts. Illustration 2-5 contains ledger accounts in T-account form for Dress Right after all of the general journal transactions have been posted. The reference (J) next to each of the posted amounts indicates that the source of the entry is page 1 of the general journal.

Before financial statements are prepared and before adjusting entries are recorded, internal transactions at the end of an accounting period are summarized in a trial balance usually prepared—step 5. A trial balance is simply a list of the general ledger accounts and their balances at a particular date. Its purpose is to check for computer errors and to prove that the sum of the accounts with debit balances equals the sum of the accounts with credit balances, that is, the accounting equation is in balance. The fact that the debits and credits are equal does not necessarily mean that the equal balances are correct. The trial balance could contain offsetting errors. As we will see later in the chapter, this trial balance also facilitates the preparation of adjusting entries.

The unadjusted trial balance at July 31, 2006, for the Dress Right Clothing Corporation appears in Illustration 2-6. Notice that retained earnings has a debit balance of \$1,000. This reflects the payment of the cash dividend to shareholders. The increases and decreases in retained earnings from revenue, expense, gain and loss transactions are recorded indirectly in temporary accounts. Before the start of the next year these increases and decreases are transferred to the retained earnings account.

LO3

STEP 5: Prepare an unadjusted trial balance.

DRESS RIGHT CLOTHING CORPORATION Unadjusted Trial Balance July 31, 2006

| Account Title | Debits | Credits |
|------------------------|---------|---------|
| Cash | 68,500 | |
| Accounts receivable | 2,000 | |
| Supplies | 2,000 | |
| Prepaid rent | 24,000 | |
| Inventory | 35,000 | |
| Furniture and fixtures | 2,000 | |
| Accounts payable | | 35,000 |
| Notes payable | | 40,000 |
| Unearned rent revenue | | 1,000 |
| Common stock | | 60,000 |
| Retained earnings | 1,000 | |
| Sales revenue | | 38,500 |
| Cost of goods sold | 22,000 | |
| Salaries expense | 5,000 | |
| Totals | 174,500 | 174,500 |

Illustration 2-6 Unadjusted Trial Balance

At any time, the total of all debit balances should equal the total of all credit balances.

CONCEPT REVIEW EXERCISE

2x Wharfham Wholesale Company began operations on August 1, 2006. The following transactions took place during the month of August:

- Investors invested \$25,000 cash in the corporation in exchange for 5,000 shares of common stock.
- Equipment is purchased for \$20,000 cash.

JOURNAL ENTRIES FOR EXTERNAL TRANSACTIONS

- c. On the first day of August, \$6,000 rent on a building is paid for the months of August and September.
- d. Merchandise inventory costing \$38,000 is purchased on account. The company uses the perpetual inventory system.
- e. \$30,000 is borrowed from a local bank, and a note payable is signed.
- f. Credit sales for the month are \$40,000. The cost of merchandise sold is \$22,000.
- g. \$15,000 is collected on account from customers.
- h. \$20,000 is paid on account to suppliers of merchandise.
Salaries of \$7,000 are paid to employees for August.
- i. A bill for \$2,000 is received from the local utility company for the month of August.
- k. \$20,000 cash was loaned to another company, evidenced by a note receivable.
- l. The corporation paid its shareholders a cash dividend of \$1,000.

Required:

- 1. Prepare a journal entry for each transaction.
- 2. Prepare an unadjusted trial balance as of August 31, 2006.

SOLUTION

- 1. Prepare a journal entry for each transaction.
 - a. The issuance of common stock for cash increases both cash and shareholders' equity (common stock).

| | | |
|--------------|--------|--------|
| Cash | 50,000 | |
| Common Stock | | 50,000 |

- b. The purchase of equipment increases equipment and decreases cash.

| | | |
|-----------|--------|--------|
| Equipment | 20,000 | |
| Cash | | 20,000 |

- c. The payment of rent in advance increases prepaid rent and decreases cash.

| | | |
|--------------|-------|-------|
| Prepaid rent | 6,000 | |
| Cash | | 6,000 |

- d. The purchase of merchandise on account increases both inventory and accounts payable.

| | | |
|------------------|--------|--------|
| Inventory | 38,000 | |
| Accounts payable | | 38,000 |

- e. Borrowing cash and signing a note increases both cash and note payable.

| | | |
|--------------|--------|--------|
| Cash | 30,000 | |
| Note payable | | 30,000 |

- f. The sale of merchandise on account increases both accounts receivable and sales revenue. Also, cost of goods sold increases and inventory decreases.

| | | |
|---------------------|--------|--------|
| Accounts receivable | 40,000 | |
| Sales revenue | | 40,000 |
| Cost of goods sold | 22,000 | |
| Inventory | | 22,000 |

- g. The collection of cash on account increases cash and decreases accounts receivable.

| | | |
|---------------------|--------|--------|
| Cash | 15,000 | |
| Accounts receivable | | 15,000 |

- b. The payment of suppliers on account decreases both accounts payable and cash.

| | | |
|------------------|--------|--------|
| Accounts payable | 25,000 | |
| Cash | | 25,000 |

- c. The payments of salaries for the period increases salaries expense (decreases retained earnings) and decreases cash.

| | | |
|------------------|-------|-------|
| Salaries expense | 7,000 | |
| Cash | | 7,000 |

- d. The receipt of a bill for services rendered increases both an expense (utilities expense) and accounts payable.

| | | |
|-------------------|-------|-------|
| Utilities expense | 2,000 | |
| Accounts payable | | 2,000 |

- e. The lending of cash to another entity and the signing of a note increases note receivable and decreases cash.

| | | |
|-----------------|--------|--------|
| Note receivable | 20,000 | |
| Cash | | 20,000 |

- f. Cash dividends paid to shareholders reduce both retained earnings and cash.

| | | |
|-------------------|-----|-----|
| Retained earnings | 300 | |
| Cash | | 300 |

Prepare an initial T-account balance sheet as of August 31, 2011.

| Account Title | Debits | Credits |
|---------------------|----------------|----------------|
| Cash | 21,000 | |
| Accounts receivable | 25,000 | |
| Prepaid rent | 6,000 | |
| Inventory | 16,000 | |
| Note receivable | 20,000 | |
| Equipment | 20,000 | |
| Accounts payable | | 20,000 |
| Note payable | | 30,000 |
| Common stock | | 50,000 |
| Retained earnings | 1,000 | |
| Sales revenue | | 40,000 |
| Cost of goods sold | 22,000 | |
| Salaries expense | 7,000 | |
| Utilities expense | 2,000 | |
| Totals | <u>140,000</u> | <u>140,000</u> |

Adjusting Entries

Step 6 in the processing cycle is to record in the general journal each entry to the ledger accounts the effect of *adjusting events* on the accounting equation. These transactions do not involve an

Step 6 in Record
adjusting entries and post to the ledger accounts.

To determine which adjusting entries to make, each business must review the end of the fiscal year along with the following questions:



exchange transaction with another entity and, therefore, are not initiated by a source document. They are recorded at the end of any period when financial statements are prepared. These transactions are commonly referred to as adjusting entries.

Even when all transactions and events are analyzed, corrected, journalized, and posted to appropriate ledger accounts, some account balances will require updating. Adjusting entries are required to implement the *accrual accounting model*.¹ More specifically, these entries are required to satisfy the *realization principle* and the *matching principle*. Adjusting entries help ensure that all revenues earned in a period are recognized in that period, regardless of when the cash payment is received. Also, they enable a company to recognize all expenses incurred during a period, regardless of when cash payment is made. As a result, a period's income statement provides a more accurate measure of a company's operating performance and a better measure for predicting future operating cash flows. The balance sheet also provides a more complete assessment of assets and liabilities as sources of future cash receipts and disbursements. You might think of adjusting entries as a method of bringing the company's financial information up to date before preparing the financial statements.

Adjusting entries are necessary for three situations:

1. Prepayments, sometimes referred to as *deferrals*.
2. Accruals.
3. Estimation.

PREPAYMENTS

Prepayments occur when the cash flow precedes either expense or revenue recognition. For example, a company may buy supplies in one period but use them in a later period. The cash outflow creates an asset (supplies) which then must be expensed in a future period as the asset is used up. Similarly, a company may receive cash from a customer in one period but provide the customer with a good or service in a future period. For instance, magazine publishers usually receive cash in advance for magazine subscriptions. The cash inflow creates a liability (unearned revenue) that is recognized as revenue in a future period when it is earned.

Prepaid Expenses. Prepaid expenses are the costs of assets acquired in one period and expensed in a future period. Whenever cash is paid, and it is not to (1) satisfy a liability or (2) pay a dividend or return capital to owners, it must be determined whether or not the payment creates future benefits or whether the payment benefits only the current period. The purchase of machinery, equipment, or supplies or the payment of rent in advance are examples of payments that create future benefits and should be recorded as assets. The benefits provided by these assets expire in future periods and their cost is expensed in future periods as related revenues are recognized.

To illustrate this concept, assume that a company paid a radio station \$2,000 in July for advertising. If that \$2,000 were for advertising provided by the radio station during the month of July, the entire \$2,000 would be expensed in the same period as the cash disbursement. If, however, the \$2,000 was a payment for advertising to be provided in a future period, say the month of August, then the cash disbursement creates an asset called *prepaid advertising*. An adjusting entry is required at the end of August to increase advertising expense, decrease shareholders' equity, and to decrease the asset prepaid advertising by \$2,000. Assuming that the cash disbursement records a debit to an asset, as in this example, the adjusting entry for a prepaid expense is, therefore, a *debit to an expense* and a *credit to an asset*.

The unadjusted trial balance can provide a starting point for determining which adjusting entries are required for a period, particularly for prepayments. Review the July 31, 2006, unadjusted trial balance for the Dress Right Clothing Corporation in Illustration 2-6 on page 59 and try to anticipate the required adjusting entries for prepaid expenses.

The first asset that requires adjustment is supplies, \$2,000, of which were purchased during July. This transaction created an asset as the supplies will be used in future periods. The company could either track the supplies used or simply count the supplies at the end of the period and determine the dollar amount of supplies remaining. Assume that Dress Right determines that at the end of July, \$1,200 of supplies remain. The following adjusting journal entry is required:

FINANCIAL REPORTING CASE

Q p. 47

LO 5

FINANCIAL REPORTING CASE

Q p. 47

1. To illustrate the effect of the matching principle on the income statement, assume that a company has the following transactions during the month of July 2006:

Prepaid expenses
The company has the following transactions during the month of July 2006:

The adjusting entry required for a prepaid expense is a debit to an expense and a credit to an asset.

LO 5

July 3
 To record the purchase
 of supplies

Supplies 500
 Cash 500

To record the cost of
 supplies used during
 the month of July

After this entry is recorded and posted to the ledger accounts, the supplies (asset) account is reduced to a \$1,200 debit balance, and the supplies expense account will have an \$500 debit balance.

The next prepaid expense requiring adjustment is rent. Recall that at the beginning of July, the company paid \$24,000 to its landlord representing one year's rent in advance. As it is reasonable to assume that the land services provided each period are equal, the monthly rent is \$2,000. At the end of July 2016, one month's prepaid rent has expired and must be recognized as expense.

July 31
 Rent expense 2,000
 Prepaid rent 2,000

To record the cost of
 one month's rent for the
 month of July

After this entry is recorded and posted to the ledger accounts, the prepaid rent account will have a debit balance of \$22,000, representing 11 remaining months at \$2,000 a month, and the rent expense account will have a \$2,000 debit balance.

The final prepayment involves the asset represented by furniture and fixtures that was purchased for \$12,000. This asset has a long life but nevertheless will expire over time. For the previous two adjusting entries, it was fairly straightforward to determine the amount of the asset that expired during the period.

However, it is difficult, if not impossible, to determine how much of the benefits from using the furniture and fixtures expired during any particular period. Recall from Chapter 1 that one approach to implementing the matching principle is to "recognize an expense by a systematic and rational allocation to specific time periods."

Assume that the furniture and fixtures have a useful life of five years or 60 months and will be worthless at the end of that period, and that we choose to allocate the cost equally over the period of use. The amount of monthly expense, called *depreciation expense*, is \$200 (\$12,000 ÷ 60 months = \$200), and the following adjusting entry is recorded.

July 31
 Depreciation expense 200
 Accumulated depreciation—Furniture and fixtures 200

To record depreciation
 of furniture and
 fixtures for the month
 of July

The entry reduces an asset, Furniture and fixtures, by \$200. However, the asset account is not reduced directly. Instead, the credit is to an account called *accumulated depreciation*. This is a contra account to furniture and fixtures. The normal balance in a contra asset account will be a credit, that is, "conical," or opposite, to the normal debit balance in an asset account. The purpose of the contra account is to keep the original cost of the asset intact while reducing it indirectly. In the balance sheet, furniture and fixtures is reported net of accumulated depreciation. This topic is covered in depth in Chapter 11.

After this entry is recorded and posted to the ledger accounts, the accumulated depreciation account will have a credit balance of \$200 and the depreciation expense account will have a \$200 debit balance. If a required adjusting entry for a prepaid expense is not recorded, net income, assets, and shareholders' equity (retained earnings) will be overstated.

Unearned Revenues. Unearned revenues are created when a company receives cash from a customer in one period for goods or services that will be provided in a future period. The cash receipt, an exchange transaction, is recorded as a debit to cash and a credit to a liability. This liability reflects the company's obligation to provide goods or services in the future.

To illustrate an unearned revenue transaction, assume that during the month of June a magazine publisher received \$36 in cash for a 24-month subscription to a monthly magazine. The subscription begins in July. On receipt of the cash, the publisher records a liability.

Unearned revenues
 are liabilities
 owed to the cash
 received from
 customers in advance
 of providing a good or
 service.

The adjusting entry required when unearned revenues are earned is a debit to a liability and a credit to revenue.

Unearned rent revenue is a liability account. It increases with a credit and decreases with a debit.

Unearned Rent Revenue

| | |
|---------|------------|
| | 0 Bal. b/w |
| July 16 | 31,000 |
| July 31 | 28,750 |

Rent Expense

| | |
|---------|--------|
| July 31 | 28,750 |
| July 31 | 28,750 |

Prepaid Rent

| | |
|---------|--------|
| July 1 | 31,000 |
| July 31 | 28,750 |

unearned subscription revenue, of \$24. Subsequently, revenue of \$1 is earned as each month's magazine is published and mailed to the customer. An adjusting entry is required each month to increase shareholders' equity (revenue) to recognize the \$1 in revenue earned and to decrease the liability. Assuming that the cash receipt records a credit to a liability, the adjusting entry for unearned revenues, therefore, is a *debit to a liability*, in this case unearned subscription revenue, and a *credit to revenue*.

Once again, the unadjusted trial balance provides information concerning unearned revenues. For Dress Right Clothing Corporation, the only unearned revenue in the trial balance is unearned rent revenue. Recall that the company subleased a portion of its building to a jewelry store for \$300 per month. On July 16, the jewelry store paid Dress Right \$1,000 in advance for the first two months' rent. The transaction was recorded as a debit to cash and a credit to unearned rent revenue.

At the end of July, how much of the \$1,000 has been earned? Approximately one-half of one month's rent has been earned, or \$250, requiring the following adjusting journal entry.

| | |
|-----------------------|-----|
| July 31 | |
| Unearned rent revenue | 250 |
| Rent revenue | 250 |

After this entry is recorded and posted to the ledger accounts, the unearned rent revenue account is reduced to a credit balance of \$750 for the remaining one and one-half months' rent, and the rent revenue account will have a \$250 credit balance. (If this entry is not recorded, net income and shareholders' equity (retained earnings) will be understated, and liabilities will be overstated.)

Alternative Approach to Record Prepayments. The same end result can be achieved for prepayments by recording the external transaction directly into an expense or revenue account. In fact, many companies prefer this approach. For simplicity, bookkeeping instructions may require all cash payments for expenses to be debited to the appropriate expense account and all cash receipts for revenues to be credited to the appropriate revenue account. The adjusting entry then records the *unexpired prepaid expense (asset)* or *unearned revenue (liability)* as of the end of the period.

For example, on July 1, 2006, Dress Right paid \$24,000 in cash for one year's rent on its building. The entry included a debit to prepaid rent. The company could have debited rent expense instead.

| | |
|----------------------|--------|
| Alternative Approach | |
| July 1 | |
| Rent expense | 24,000 |
| Cash | 24,000 |

The adjusting entry then records the amount of prepaid rent as of the end of July, \$2,000, and reduces rent expense to \$2,000, the cost of rent for the month of July.

| | |
|----------------------|--------|
| Alternative Approach | |
| July 31 | |
| Prepaid rent | 22,000 |
| Rent expense | 22,000 |

The net effect of handling the transactions in this manner is the same as the previous treatment. Either way, the prepaid rent account will have a debit balance at the end of July of \$22,000, and the rent expense account will have a debit balance of \$2,000. What is important is that an adjusting entry is recorded to ensure the appropriate amounts are reflected in both the expense and asset before financial statements are to be prepared.

Similarly, the July 16 cash receipt from the jewelry store representing an advance for two months' rent could have been recorded by Dress Right as a credit to rent revenue instead of unearned rent revenue (a liability).

Alternative Approach

July 16

| | | |
|--------------|-----|-----|
| Cash | 600 | |
| rent revenue | | 600 |

If Dress Right records the entire \$1,000 as rent revenue in this way, it would then use the adjusting entry to record the amount of unearned revenue as of the end of July, \$750, and reduce rent revenue to \$250, the amount of revenue earned during the month of July.

Alternative Approach

July 31

| | | |
|---------------------|-----|-----|
| Rent revenue | 750 | |
| earned rent revenue | | 750 |

ACCRUALS

Accruals occur when the cash flow comes *after* either expense or revenue recognition. For example, a company often uses the services of another entity in one period and pays for them in a subsequent period. An expense must be recognized in the period incurred and an accrued liability recorded. A service or service is provided to customers on credit. In such instances, a revenue is recognized in the period earned and an asset, a receivable, is created.

Many accruals involve external transactions that automatically are recorded from a source document. For example, a sales invoice for a credit sale provides all the information necessary to record the debit to accounts receivable and the credit to sales revenue. However, there are some accruals that involve internal transactions and thus require adjusting entries. Because accruals involve recognition of expense or revenue before cash flow, the unadjusted trial balance will not be as helpful in identifying required adjusting entries as with prepayments.

Accrued Liabilities. In a number of instances, we are concerned with expenses incurred but not yet paid. Dress Right Clothing Corporation requires two adjusting entries for accrued liabilities at the end of 2006.

The first entry is for employee salaries for the second half of July. Recall that on July 20 the company paid employees \$5,000 for salaries for the first half of the month. Salaries for the second half of July will probably be paid in early August. Nevertheless, the company incurred a liability on July 16 for services provided to it by its employees. As such, there exists an obligation at the end of July to pay the salaries earned by employees. An adjusting entry is required to increase salaries expense (decrease shareholders' equity) and to increase liabilities for the salaries payable. The adjusting entry for an accrued liability always includes a *debit to an expense* and a *credit to a liability*. Assuming that salaries for the second half of July are \$5,000, the following adjusting entry is recorded:

July 31

| | | |
|------------------|-------|-------|
| Salaries expense | 5,000 | |
| Salaries Payable | | 5,000 |

After this entry is recorded and posted to the general ledger, the salaries expense account will have a debit balance of \$10,000 (\$5,000 + \$5,000), and the salaries payable account will have a credit balance of \$5,000.

The unadjusted trial balance does provide information about the second required accrued liability entry. In the trial balance, we can see a balance in the salaries payable account of \$40,000. The company borrowed this amount on July 1, 2006. Both notes require the payment of 10% interest. Whenever the trial balance reveals interest-bearing debt, and interest is not paid on the last day of the period, an adjusting entry is required for the amount of interest that has built up (accrued) since the last payment date or the last date interest was accrued. In this case, we calculate interest as follows:

| | |
|--------------------|------------|
| Amount of interest | |
| Principal | \$40,000 |
| Rate | 10% |
| Time | 30 days |
| Interest | \$1,333.33 |

| | |
|------------------|------------|
| Accrued interest | |
| Interest expense | \$1,333.33 |
| Interest payable | \$1,333.33 |

The adjusting entry is recorded as follows: debit interest expense and credit interest payable.

After this entry is recorded and posted to the general ledger, the interest payable account will have a credit balance of \$1,333.33.

| | |
|------------------|------------|
| Salaries Payable | |
| Balance | \$40,000 |
| Adjusting entry | \$1,333.33 |

$$\text{Principal} \times \text{Interest rate} \times \text{Time} = \text{Interest}$$

$$\$40,000 \times 6\% \times \frac{1}{4} = \$333 \text{ (rounded)}$$

5. **Interest payable**
 a. **Interest payable**
 b. **Interest payable**

Interest rates always are stated as the annual rate. Therefore, the above calculation uses this annual rate multiplied by the principal amount multiplied by the amount of time outstanding. In this case the month or one-twelfth of a year.

| | | |
|------------------|-----|-----|
| July 31 | | |
| Interest payable | 333 | 333 |

After this entry is recorded and posted to the ledger accounts, the interest expense account will have a debit balance of \$333, and the interest payable account will have a credit balance of \$333. Failure to record a required adjusting entry for an accrued liability will cause net income and shareholders' equity (retained earnings) to be overstated, and liabilities to be understated.

6. **Accrued receivables**
 a. **Accrued receivables**
 b. **Accrued receivables**

Accrued Receivables. Accrued receivables involve the recognition of revenue earned before cash is received. An example of an internal accrued revenue event is the recognition of interest earned on a loan to another entity. For example, assume that Dress Right loans another corporation \$30,000 at the beginning of August, evidenced by a note receivable. Terms of the note call for the payment of principal, \$30,000, and interest at 6% in three months. An external transaction records the cash disbursement—a debit to note receivable and a credit to cash of \$30,000.

What adjusting entry would be required at the end of August? Dress Right needs to record the interest revenue earned but not yet received and the corresponding receivable. Interest receivable increases and interest revenue (shareholders' equity) also increases. The adjusting entry for accrued receivables always includes a *debit to an asset, a receivable* and a *credit to revenue*. In this case, at the end of August Dress Right recognizes \$200 in interest revenue (\$30,000 \times 6% \times 1/6) and makes the following adjusting entry. If this entry is not recorded, net income, assets, and shareholders' equity (retained earnings) will be understated.

| | | |
|---------------------|-----|-----|
| August 31 | | |
| Interest receivable | 200 | |
| Interest revenue | | 200 |

There are no accrued revenue adjusting entries required for Dress Right at the end of July. The required adjusting entries for prepayments and accruals are recapped in Graphic 2-4. Each case involves recognizing an expense or revenue in a period that differs from the period in which cash was paid or received. These entries are necessary to properly measure operating performance and financial position according to the accrual accounting model.

GRAPHIC 2-4
Adjusting Entries

| | Adjusting Entries | | | |
|---|-------------------|-----------|-----------|-----------|
| | Expenses | | Revenues | |
| | Debit | Credit | Debit | Credit |
| Prepayments | | | | |
| Initially recorded as assets or liabilities | Expense | Asset | Liability | Revenue |
| Prepayments | | | | |
| Initially recorded as expenses or revenues | Asset | Expense | Revenue | Liability |
| Accruals | Expense | Liability | Asset | Revenue |

Dress Right Clothing is a corporation. Corporations are subject to varying taxation. Income taxes (federal, state and local) are levied on all taxable income that corporations are liable to report. The entry for additional adjusting entry on the right is required for Dress Right to accrue the amount of prepayment revenue that is payable that is applicable to the month of July. Accounting for prepayment revenue is presented in Chapter 4 and, interest in depth in Chapter 8.

ESTIMATES

A third classification of adjusting entries is estimates. Accountants often must make estimates of future events to comply with the accrual accounting model. For example, the calculation of depreciation expense requires an estimate of expected useful life of the asset being depreciated as well as its expected residual value. We discussed the adjusting entries for depreciation expense in the context of its being a prepayment, but it also could be thought of as an estimate.

One situation involving an estimate that does not fit neatly into either the prepayment or accrual classification is bad debt expense. Chapter 3 introduced briefly the allowance method of accounting for bad debts. This method requires an estimate of the amount of accounts receivable that will ultimately prove to be uncollectible. This estimate is required to properly match the bad debt expense with the revenue it helps generate as well as reflect the collectible portion of the receivable in the balance sheet.

The July 31, 2006, unadjusted trial balance for Dress Right shows a balance in accounts receivable of \$2,000. Assume that the company's management felt that of this amount, only \$1,500 would ultimately be collected. An adjusting entry is required to decrease accounts receivable and increase bad debt expense (decrease shareholders' equity) by \$500. The adjusting entry is:

| | | |
|--------------------------------------|-----|-----|
| July 31 | | |
| Bad debt expense | 500 | |
| Allowance for uncollectible accounts | | 500 |

Notice that the accounts receivable account is not reduced directly. A contra account called *allowance for uncollectible accounts* is credited. After this entry is recorded and posted to the ledger accounts, bad debt expense will have a debit balance of \$500 and the allowance for uncollectible accounts account will have a credit balance of \$500.*

The contra account is used to keep track in the accounts receivable account the total amount of receivables that are still outstanding. The allowance account will always have a credit balance equal to estimated bad debts on existing accounts receivable. Only when the account is actually written off as uncollectible would accounts receivable be reduced. At this point, the \$500 is just an estimate. In the balance sheet, accounts receivable is shown net of the allowance account, in this case \$1,500. Chapter 7 addresses the topics of accounts receivable and bad debts in more depth.

Illustration 2-7 adapts the July 31, 2006, adjusting entries for Dress Right Clothing Corporation as they would appear in a general journal.

After the adjusting entries are posted to the general ledger accounts, the next step—step 5—in the processing cycle is to prepare an adjusted trial balance. The term adjusted refers to the fact that adjusting entries have now been posted to the accounts. Recall that the common entry Post. Ref. (Posting Reference) is the number assigned to the general ledger account that is being debited or credited. Illustration 2-8 shows the July 31, 2006, adjusted trial balance for Dress Right Clothing Corporation.

Accountants often must make estimates of future events to comply with the accrual accounting model.

The accounts receivable account is not reduced directly.

LO5

*If the allowance for uncollectible accounts had a credit balance before the adjusting entry, say \$250, then the adjusting entry would be: debit Bad debt expense \$250; credit Allowance for uncollectible accounts \$250.

ILLUSTRATION 2-7

The General Journal: Adjusting Entries

| DRESS RIGHT CLOTHING CORPORATION | | | | | |
|----------------------------------|---|---|------------|-------|--------|
| General Journal | | | | | |
| Date | | Account Title and Explanation | Post Ref. | Debit | Credit |
| July 31 | 1 | Supplies expense
supplies
To record the cost of supplies used during the month of July | 520
125 | 800 | 800 |
| 31 | | Rent expense
Prepaid rent
To record the cost of expired rent for the month of July | 530
120 | 2,000 | 2,000 |
| 31 | | Depreciation expense
Accumulated depreciation—furniture and fixtures
To record depreciation for furniture and fixtures in the month of July | 540
155 | 200 | 200 |
| 31 | | Unearned rent revenue
Rent revenue
To record the amount of unearned rent revenue earned during July | 230
410 | 250 | 250 |
| 31 | | Salaries expense
Salaries payable
To record accrued salaries at the end of July | 510
230 | 5,500 | 5,500 |
| 31 | | Interest expense
Interest payable
To accrue interest expense for July on notes payable | 550
240 | 333 | 333 |
| 31 | | Bad debt expense
Allowance for uncollectible accounts
To record bad debt expense for July | 560
115 | 500 | 500 |

ILLUSTRATION 2-8

Adjusted Trial Balance

DRESS RIGHT CLOTHING CORPORATION
Adjusted Trial Balance
July 31, 2008

STEP 7 Prepare an adjusted trial balance.

| Account Title | Debits | Credits |
|---|---------|---------|
| Cash | 68,500 | |
| Accounts receivable | 2,000 | |
| Allowance for uncollectible accounts | | 500 |
| Supplies | 1,200 | |
| Prepaid rent | 22,000 | |
| Inventory | 38,000 | |
| Furniture and fixtures | 12,000 | |
| Accumulated depreciation—furniture and fixtures | | 700 |
| Accounts payable | | 35,000 |
| Notes payable | | 60,000 |
| Unearned rent revenue | | 750 |
| Salaries payable | | 5,500 |
| Interest payable | | 333 |
| Common stock | | 60,000 |
| Retained earnings | 1,000 | |
| Sales revenue | | 38,500 |
| Rent revenue | | 250 |
| Cost of goods sold | 22,000 | |
| Salaries expense | 10,500 | |
| Supplies expense | 800 | |
| Rent expense | 2,000 | |
| Depreciation expense | 200 | |
| Interest expense | 333 | |
| Bad debt expense | 500 | |
| Totals | 181,033 | 181,033 |

CONCEPT REVIEW EXERCISE

The Wyndham Wholesale Company needs to prepare financial statements at the end of August 2006 for presentation to its bank. An unadjusted trial balance as of August 31, 2006, was presented in a previous concept review exercise on page 64.

The following information also is available:

- The company anticipates that of the \$25,000 in accounts receivable from customers, \$2,500 will not be collected.
- The note payable requires the entire \$31,000 in principal plus interest at 10% to be paid on July 31, 2007. The date of the loan is August 1, 2006.
- Depreciation on the equipment for the month of August is \$500.
- The note receivable is dated August 6, 2006. The note requires the entire \$20,000 in principal plus interest at 12% to be repaid in four months (the loan was outstanding for one-half month during August).
- The prepaid rent of \$3,000 represents rent for the months of August and September.

Instructions

- Prepare any necessary adjusting entries at August 31, 2006.
- Prepare an adjusted trial balance as of August 31, 2006.
- What is the total net effect on income (overstated or understated) if the adjusting entries are not made?

- Prepare any necessary adjusting entries at August 31, 2006.
 - An adjusting entry is required to adjust allowance for uncollectible accounts to \$2,500. Because there is no balance in the allowance account before adjustment, the adjusting entry must record a bad debt expense of \$2,500.

SOLUTION

| | | |
|--------------------------------------|-------|-------|
| Bad debt expense | 2,500 | |
| Allowance for uncollectible accounts | | 2,500 |

- An adjusting entry is required to accrue the interest expense on the note payable for the month of August. Accrued interest is calculated as follows:

$$\$31,000 \times 10\% \times \frac{1}{2} = \$25$$

| | | |
|------------------|-----|-----|
| Interest expense | 250 | |
| Interest payable | | 250 |

- Depreciation expense on the equipment must be recorded.

| | | |
|------------------------------------|-----|-----|
| Depreciation expense | 500 | |
| Accumulated depreciation—equipment | | 500 |

- An adjusting entry is required for the one-half month of accrued interest revenue earned on the note receivable. Accrued interest is calculated as follows:

$$\$20,000 \times 12\% \times \frac{1}{2} \times \frac{1}{2} = \$100$$

| | | |
|---------------------|-----|-----|
| Interest receivable | 100 | |
| Interest revenue | | 100 |

- An adjusting entry is required to recognize the amount of prepaid rent that expired during August.

| | | |
|--------------|-------|-------|
| Rent expense | 3,000 | |
| Prepaid rent | | 3,000 |

2. Prepare an adjusted trial balance as of August 31, 2006.

| Account Title | Debits | Credits |
|--------------------------------------|--------|---------|
| Cash | 21,000 | |
| Accounts receivable | 25,000 | |
| Allowance for uncollectible accounts | | 2,500 |
| Prepaid rent | 3,000 | |
| Inventory | 16,000 | |
| Interest receivable | 100 | |
| Note receivable | 20,000 | |
| Equipment | 20,000 | |
| Accumulated depreciation—equipment | | 500 |
| Accounts payable | | 20,000 |
| Interest payable | | 250 |
| Note payable | | 30,000 |
| Common stock | | 50,000 |
| Retained earnings | 1,000 | |
| Sales revenue | | 40,000 |
| Interest revenue | | 100 |
| Cost of goods sold | 22,000 | |
| Salaries expense | 7,000 | |
| Utilities expense | 2,000 | |
| Bad debt expense | 2,500 | |
| Interest expense | 250 | |
| Depreciation expense | 500 | |
| Rent expense | 3,000 | |
| Totals | 43,350 | 43,350 |

3. What is the effect on income (overstated or understated), if the adjusting entries are not made?

| Adjusting Entry | Income Overstated
(understated) |
|----------------------------------|------------------------------------|
| Bad debt expense | \$2,500 |
| Interest expense | 250 |
| Depreciation expense | 500 |
| Interest revenue | 100 |
| Rent expense | 3,000 |
| Net effect, income overstated by | \$6,150 |

We now turn our attention to the preparation of financial statements.

Preparing the Financial Statements

STEP 2: Preparation of Financial Statements

The purpose of this step is to prepare financial statements that summarize the profit-generating transactions that caused shareholders' equity to change during the period.

The purpose of each of the steps in the processing cycle in this part is to provide information for step 2—preparation of the financial statements. The adjusted trial balance contains the necessary information. After all, the financial statements are the primary means of communicating financial information to external parties.

THE INCOME STATEMENT

The purpose of the income statement is to summarize the profit-generating activities of a company that occurred during a particular period of time. It is a change statement in that it reports the changes in shareholders' equity (retained earnings) that occurred during the period as a result of revenues, expenses, gains, and losses. Illustration 2-9 shows the income statement for Dress Right Clothing Corporation for the month of July 2006.

DRESS RIGHT CLOTHING CORPORATION
Income Statement
For the Month of July 2006

ILLUSTRATION 2-9
 Income Statement

| | | |
|----------------------------|----------|----------|
| Sales revenue | | \$ 8,400 |
| Cost of goods sold | | 2,200 |
| Gross profit | | 6,200 |
| Operating expenses | | |
| Salaries | \$ 1,000 | |
| Supplies | 500 | |
| Rent | 1,000 | |
| Utilities | 200 | |
| Depreciation | 1,000 | |
| Advertising expenses | 400 | |
| Operating income | | 2,500 |
| Other income less expenses | | |
| Interest income | 300 | |
| Interest expense | | 100 |
| Net income | | \$ 2,700 |

The income statement indicates a profit for the month of July of \$2,700. During the month, the company was able to increase its net assets (equity) from activities related to selling its product. Dress Right is a corporation and subject to the payment of income tax on its profits. We ignore this required accrual here and address income taxes in a later chapter.

The components of the income statement usually are classified, that is, grouped according to common characteristics. A common classification scheme is to separate operating items from nonoperating items, as we do in Dress Right's income statement. Operating items include revenues and expenses directly related to the principal revenue-generating activities of the company. For example, operating items for a manufacturing company include sales revenue from the sale of products and expenses related to the production of companies that sell products like Dress Right often report a subtotal within operating income: sales less cost of goods sold, called *gross profit*. Nonoperating items include gains and losses and revenues and expenses from peripheral activities. For Dress Right Clothing, rent revenue and interest expense are nonoperating items because they do not relate to the principal revenue-generating activity of the company, selling clothes. In Chapter 4 we discuss the format and content of the income statement in more depth.

THE BALANCE SHEET

The purpose of the balance sheet is to present the financial position of the company on a particular date. Unlike the income statement, which is a change statement reporting events that occurred *during a period of time*, the balance sheet is a statement that presents an organized list of assets, liabilities, and shareholders' equity *at a point in time*. To provide a quick overview, Illustration 2-10 shows the balance sheet for Dress Right Clothing at July 31, 2006.

As we do in the income statement, we group the balance sheet elements into meaningful categories. For example, most balance sheets include the classifications of current assets and current liabilities. Current assets are those assets that are cash, will be converted into cash, or will be used up within one year or the operating cycle, whichever is longer. Current liabilities are those liabilities that will be satisfied within one year or the operating cycle, whichever is longer. For a manufacturing company, the operating cycle refers to the period of time necessary to convert cash to raw materials, raw materials to a finished product, the finished product to receivables, and then finally receivables back to cash. For most companies, this period is less than a year.

Examples of assets not classified as current include property and equipment and long-term receivables and investments. The only noncurrent asset that Dress Right has at July 31, 2006, is furniture and fixtures, which is classified under the property and equipment category.

The balance sheet is a statement that presents an organized list of assets, liabilities, and shareholders' equity at a point in time.

Balance sheet is a statement that presents an organized list of assets, liabilities, and shareholders' equity at a point in time.

ILLUSTRATION 2-10
Balance Sheet

| DRESS RIGHT CLOTHING CORPORATION | | |
|---|------------|------------------|
| Balance Sheet | | |
| At July 31, 2006 | | |
| Assets | | |
| Current assets: | | |
| Cash | | \$ 48,500 |
| Accounts receivable | \$ 2,000 | |
| Less: Allowance for uncollectible accounts | <u>500</u> | <u>1,500</u> |
| Supplies | | 1,200 |
| Inventory | | 38,000 |
| Prepaid rent | | 22,000 |
| Total current assets | | 131,200 |
| Property and equipment | | |
| Furniture and fixtures | 12,000 | |
| Less: Accumulated depreciation | <u>200</u> | <u>11,800</u> |
| Total assets | | <u>\$ 47,400</u> |
| Liabilities and Shareholders' Equity | | |
| Current liabilities: | | |
| Accounts payable | | \$ 35,000 |
| Salaries payable | | 5,500 |
| Unearned rent revenue | | 750 |
| Interest payable | | 333 |
| Note payable | | <u>10,000</u> |
| Total current liabilities | | \$1 583 |
| Long-term liabilities: | | |
| Note payable | | 30,000 |
| Shareholders' equity: | | |
| Common stock, 6,000 shares issued and outstanding | \$60,000 | |
| Retained earnings | | <u>61,417</u> |
| Total shareholders' equity | | <u>\$ 47,400</u> |
| Total liabilities and shareholders' equity | | <u>\$ 47,400</u> |

*Beginning retained earnings + Net income - Dividends
0 + \$2,417 - 1,000 = \$1,417

All liabilities not classified as current are listed as long term. Dress Right's liabilities at July 31, 2006, include the \$30,000 note payable due to be paid in 23 months. This liability is classified as long term.

Shareholders' equity lists the *paid-in capital* portion of equity—common stock—and *retained earnings*. Notice that the *retained earnings* we looked at in Illustration 2-9 ties in to the balance sheet through retained earnings. Specifically, the revenue, expense, gain, and loss transactions that make up net income in the income statement (\$2,417) become the major components of retained earnings. Later in the chapter we discuss the closing process we use to transfer, or close, these *temporary* income statement accounts to the *permanent* retained earnings account.

During the month, retained earnings, which increased by the amount of net income, also decreased by the amount of the cash dividend paid to shareholders, \$ 1,000. The net effect of these two changes is an increase in retained earnings from zero at the beginning of the period to \$ 1,417 (\$2,417 - 1,000) at the end of the period and is also reported in the statement of shareholders' equity in Illustration 2- 2 on page 73.

THE STATEMENT OF CASH FLOWS

Similar to the income statement, the statement of cash flows also is a change statement, disclosing the events that caused cash to change during the period. The statement classifies all transactions affecting cash into one of three categories: (1) *operating activities*, (2) *investing activities*, and (3) *financing activities*. Operating activities are inflows and outflows of cash related to transactions entering into the determination of net income. Investing activi-

The purpose of the statement of cash flows is to provide information about the cash and cash equivalents that entered and left the company during the period.

ties involve the acquisition and sale of (1) long-term assets used in the business and (2) nonoperating investment assets. Financing activities involve cash inflows and outflows from transactions with creditors and owners.

The statement of cash flows for Dress Right for the month of July 2006 is shown in Illustration 2-11. As this is the first period of operations for Dress Right, the cash balance at the beginning of the period is zero. The net increase in cash of \$66,500, therefore, equals the ending balance of cash disclosed in the balance sheet.

DRESS RIGHT CLOTHING CORPORATION
Statement of Cash Flows
For the Month of July 2006

| | |
|---|-----------------|
| Cash Flows from Operating Activities | |
| Cash inflows: | |
| From customers | \$36,500 |
| From rent | 1,000 |
| Cash outflows: | |
| For rent | (24,000) |
| For supplies | (2,000) |
| To suppliers of merchandise | (25,000) |
| To employees | (5,000) |
| Net cash flows from operating activities | \$16,500 |
| Cash Flows from Investing Activities | |
| Purchase of furniture and fixtures | (12,000) |
| Cash Flows from Financing Activities | |
| Issue of common stock | \$60,000 |
| Increase in notes payable | 40,000 |
| Payment of cash dividend | (1,000) |
| Net cash flows from financing activities | 99,000 |
| Net increase in cash | \$66,500 |

ILLUSTRATION 2-11
Statement of Cash Flows

There are two generally accepted formats that can be used to report operating activities, the direct method and the indirect method. In Illustration 2-11 we use the direct method. These two methods are discussed and illustrated in subsequent chapters.

THE STATEMENT OF SHAREHOLDERS' EQUITY

The final statement, the statement of shareholders' equity, also is a change statement. It discloses the sources of the changes in the various permanent shareholders' equity accounts that occurred during the period. Illustration 2-12 shows the statement of shareholders' equity for Dress Right for the month of July 2006.¹

DRESS RIGHT CLOTHING CORPORATION
Statement of Shareholders' Equity
For the Month of July 2006

| | Common
Stock | Retained
Earnings | Total
Shareholders'
Equity |
|--------------------------|-----------------|----------------------|----------------------------------|
| Balance at July 1, 2006 | 0 | 0 | 0 |
| Issue of common stock | \$60,000 | | \$60,000 |
| Net income for July 2006 | | 400 | 400 |
| Less: Dividends | | (1,000) | (1,000) |
| Balance at July 31, 2006 | <u>\$60,000</u> | <u>\$396</u> | <u>\$60,396</u> |

ILLUSTRATION 2-12
Statement of Shareholders' Equity

¹ The statement of shareholders' equity also discloses the changes in the various permanent shareholders' equity accounts that occurred during the period. Illustration 2-12 shows the statement of shareholders' equity for Dress Right for the month of July 2006.

The two video transactions by their nature are in the income statement. Therefore, these transactions are recorded in the income statement. In addition, the company paid its shareholders

dividends, which are also in the statement of shareholders' equity. This shows that dividends, in this case, are a decrease of \$1,000 in cash dividends, but reduced retained earnings.

To close the temporary accounts, the retained earnings account is debited for the amount of the net income.

LO7

The Closing Process

At the end of any interim reporting period, the accounting processing cycle is now complete. An interim reporting period usually produces financial statements and includes the closing of the books at the end of the fiscal year. However, at the end of the fiscal year, the company is not necessarily closing the temporary accounts and is preparing a post-closing trial balance.

The closing process serves a dual purpose: (1) the temporary accounts (revenues, expenses, gains, and losses) are reduced to zero balances ready to measure activity in the upcoming accounting period, and (2) these temporary account balances are closed (transferred) to retained earnings to reflect the changes that have occurred in that account during the period. Often, an intermediate step is to close revenues and expenses to income summary. Then, the income summary is closed to retained earnings. The use of the income summary account is just a bookkeeping convenience and provides a check that all temporary accounts have been properly closed (that is, the income statement is correct).

To illustrate the closing process, assume that the fiscal year-end for Dress Right Clothing Corporation is July 31. Using the adjusted trial balance in Illustration 2-8, we can prepare the following general journal entries.

To close the revenue accounts, the revenue summary account is debited for the amount of the net income.

| | | |
|----------------|--------|--------|
| July 31 | | |
| Sales revenue | 58,500 | |
| Rent revenue | 250 | |
| Income summary | | 58,750 |

The first closing entry transfers the revenue account balances to income summary. Because revenue accounts have credit balances, they are debited to bring them to zero. After this entry is posted to the accounts, both revenue accounts have a zero balance.

To close the expense accounts, the income summary account is debited for the amount of the net income.

| | | |
|----------------------|--------|--------|
| July 31 | | |
| Income summary | 36,317 | |
| Cost of goods sold | | 22,000 |
| Sales expense | | 10,500 |
| Supplies expense | | 500 |
| Rent expense | | 2,000 |
| Depreciation expense | | 750 |
| Interest expense | | 375 |
| Bad debt expense | | 500 |

The second closing entry transfers the expense account balances to income summary. As expense accounts have debit balances, they are credited to bring them to zero. After this entry is posted to the accounts, the expense accounts have a zero balance and the income summary account has a credit balance equal to net income for the period; in this case, \$22,417.

| Income Summary | | |
|----------------|--------|----------|
| Expenses | 36,317 | 38,750 |
| | | Revenues |
| | 22,417 | Net |

To close the income summary account, the retained earnings account is debited for the amount of the net income.

| | | |
|-------------------|--------|--------|
| July 31 | | |
| Income summary | 22,417 | |
| Retained earnings | | 22,417 |

$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$

ILLUSTRATION 2-13
Post-Closing Trial Balance

| Account Title | Debits | Credits |
|---|---------|---------|
| Cash | 41,500 | |
| Accounts receivable | 2,000 | |
| Allowance for doubtful debts account | | 500 |
| Supplies | 700 | |
| Prepaid rent | 12,000 | |
| Inventory | 50,000 | |
| Furniture and fixtures | 2,000 | |
| Accumulated depreciation—Furniture and fixtures | | 200 |
| Accounts payable | | 35,000 |
| Notes payable | | 40,000 |
| Unearned rent revenue | | 750 |
| Salaries payable | | 3,500 |
| Interest payable | | 133 |
| Common stock | | 60,000 |
| Retained earnings | | 1,217 |
| Totals | 143,200 | 143,200 |

FINANCIAL STATEMENT PREPARATION AND CLOSING

5. $\frac{1}{2} \frac{d}{dt} \int_{\Omega} |\nabla u|^2 dx$

1. Prepare an income statement and a statement of shareholders' equity for the month ended August 31, 2016, and a classified balance sheet as of August 31, 2016.
2. Assume that August 31 is the company's fiscal year-end. Prepare the necessary adjusting entries and a post-closing trial balance.

Prepare an income statement and a statement of shareholders' equity for the month ended August 31, 2006, and a classified balance sheet as of August 31, 2006.

WYNDHAM WHOLESALE COMPANY
Income Statement
For the Month of August 2006

| | | |
|--------------------------|---------|----------|
| Sales revenue | | \$40,000 |
| Cost of goods sold | | 22,000 |
| Gross profit | | 18,000 |
| Operating expenses | | |
| Salaries | \$7,500 | |
| Utilities | 2,000 | |
| Bad debt | 2,500 | |
| Depreciation | 500 | |
| Rent | 3,000 | |
| Total operating expenses | | 15,500 |
| Operating income | | 2,500 |
| Other income (expense) | | |
| Interest revenue | 100 | |
| Interest expense | (250) | (150) |
| Net income | | \$ 2,350 |

WYNDHAM WHOLESALE COMPANY
Statement of Shareholders' Equity
For the Month of August 2006

| | Common
Stock | Retained
Earnings | Total
Shareholders'
Equity |
|----------------------------|-----------------|----------------------|----------------------------------|
| Balance at August 1, 2006 | 0 | 0 | 0 |
| Issue of common stock | 50,000 | | 50,000 |
| Net income for August 2006 | | 2,350 | 2,350 |
| Dividend | | (200) | (200) |
| Balance at August 31, 2006 | 50,000 | 2,150 | \$ 52,150 |

WYNDHAM WHOLESALE COMPANY
Balance Sheet
At August 31, 2006

| Assets | | |
|---|----------|-----------|
| Current assets | | |
| Cash | | \$ 21,000 |
| Accounts receivable | \$25,000 | |
| Less: Allowance for uncollectible accounts | 2,500 | 22,500 |
| Inventory | | 6,000 |
| Prepaid expenses | | 0 |
| Other receivables | | 11,000 |
| Prepaid rent | | 1,000 |
| Total current assets | | 50,500 |
| Property, plant, and equipment | | |
| Equipment | 20,000 | |
| Less: Accumulated depreciation | 4,000 | 16,000 |
| Total assets | | \$ 66,500 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | | |
| Accounts payable | | \$ 20,000 |
| Interest payable | | 250 |
| Note payable | | 20,000 |
| Total current liabilities | | 40,250 |
| Shareholders' equity | | |
| Common stock, 5,000 shares issued and outstanding | 50,000 | |
| Retained earnings | 16,500 | |
| Total shareholders' equity | | 66,500 |
| Total liabilities and shareholders' equity | | \$ 66,500 |

2. Assume that August 31 is the company's fiscal year-end. Prepare the necessary closing entries and a post-closing trial balance.

August 31

| | | |
|------------------|--------|--------|
| sales revenue | 40,000 | |
| interest revenue | 100 | |
| income summary | | 40,100 |

Debit the revenue
and interest
accounts.

August 31

| | | |
|----------------------|--------|--------|
| income summary | 47,050 | |
| Cost of goods sold | | 22,000 |
| Salaries expense | | 7,100 |
| Utilities expense | | 2,100 |
| Advertising expense | | 2,500 |
| Interest expense | | 250 |
| Depreciation expense | | 500 |
| Rent expense | | 100 |

Debit the expense
accounts and
income
summary.

August 31

| | | |
|-------------------|-------|-------|
| income summary | 2,850 | |
| Retained earnings | | 2,850 |

Debit the income
summary account to
retained earnings.

Post-Closing Trial Balance

| Account Title | Debits | Credits |
|--------------------------------------|---------------|----------------|
| Cash | 1,750 | |
| Accounts receivable | 1,000 | |
| Allowance for uncollectible accounts | | 2,500 |
| Prepaid rent | 500 | |
| Inventory | 100 | |
| Interest receivable | 00 | |
| Note receivable | 1,000 | |
| Equipment | 1,000 | |
| Accumulated depreciation—equipment | | 500 |
| Accounts payable | | 20,000 |
| Interest payable | | 250 |
| Note payable | | 20,000 |
| Common stock | | 50,000 |
| Retained earnings | | 2,850 |
| Totals | 11,350 | 113,150 |

Conversion from Cash Basis to Accrual Basis

In Chapter 1, we discussed and illustrated the differences between cash and accrual accounting. Cash basis accounting produces a measure called *net cash provided by*. This measure is the difference between cash receipts and cash disbursements during a reporting period from transactions related to providing goods and services to customers. On the other hand, the accrual accounting model measures an entity's accomplishments and resource sacrifices during the period, regardless of when cash is received or paid. At this point, you might wish to review the material in Chapter 1 on pages 7 and 8 to reinforce your understanding of the motivation for using the accrual accounting model.

Adjusting entries, for the most part, are conversions from cash to accrual. Prepayments and accruals occur when cash flow precedes or follows expense or revenue recognition.

Accountants sometimes are called upon to convert cash basis financial statements to accrual basis financial statements, particularly for small businesses. You now have all of the tools you need to make this conversion. For example, if a company paid \$21,000 cash for a service during the fiscal year and you determine that there was \$5,000 in prepaid advance

at the beginning of the year and \$3,000 at the end of the year, then you can determine (accrual basis) *insurance expense* for the year. Prepaid insurance decreased by \$2,000 during the year so insurance expense must be \$22,000 (\$20,000 in cash paid *plus* the decrease in prepaid insurance). You can visualize as follows:

| Prepaid Insurance | |
|----------------------------|----------|
| Balance, beginning of year | \$ 5,000 |
| Plus cash paid | 20,000 |
| Less insurance expense | ? |
| Balance, end of year | \$ 3,000 |

Insurance expense of \$22,000 completes the explanation of the change in the balance of prepaid insurance. Prepaid insurance of \$3,000 is reported as an asset in an accrual basis balance sheet.

Using T-accounts is a convenient approach for converting from cash to accrual. For example, if the amount of cash collected from customers during the year was \$220,000, and you know that accounts receivable at the beginning of the year was \$45,000 and \$33,000 at the end of the year, you can use T-accounts to determine that sales revenue for the year must have been \$206,000.

| Accounts Receivable | | Sales Revenue | |
|---------------------|----------|---------------|------------------|
| Beg. balance | 45,000 | | |
| Credit sales | ? | | ? |
| | | 220,000 | Cash collections |
| End balance | \$33,000 | | |

Illustration 2-14 provides an example of a conversion from cash basis net income to accrual basis net income.

Illustration 2-14 Cash to Accrual

The Khand Leasing Services Company makes and rents out the cash basis with one exception. The company reports equipment as an asset and records depreciation expense on the equipment during 2006. Khand collected \$145,000 from customers, paid \$97,000 in operating expenses, and recorded \$3,000 in depreciation expense, resulting in net income of \$45,000. The owner has asked you to convert this \$45,000 to net income for the accrual basis. You are asked to determine the following information: (a) accounts receivable, prepaid expenses, and accrued liabilities.

| | January 1, 2006 | December 31, 2006 |
|--|-----------------|-------------------|
| Accounts receivable | \$ 6,000 | \$25,000 |
| Prepaid expenses | 7,000 | 4,000 |
| Accrued liabilities (operating expenses) | 2,000 | 1,400 |

Accrual net income is \$69,700; determine it as follows:

| | |
|--------------------------------------|----------|
| Cash basis net income | \$45,000 |
| Add: increase in accounts receivable | 9,000 |
| deduct: Decrease in prepaid expenses | (3,000) |
| Add: Decrease in accrued liabilities | 700 |
| Accrual basis net income | \$69,700 |

When converting from cash to accrual income, we add increases and deduct decreases in assets. For example, an increase in accounts receivable means that the company earned more revenue than cash collected, requiring the addition to cash basis income. Conversely, we add decreases and deduct increases in accrued liabilities. For example, a decrease in interest

payable means that the company incurred less interest expense than the cash interest it paid, requiring the addition to cash bank's income.



FINANCIAL REPORTING CASE SOLUTION

What purpose do adjusting entries serve? (p. 62) Adjusting entries help ensure that only revenues actually earned in a period are recognized in that period, regardless of when cash is received. In this instance, for example, \$13,000 cash has been received for services that haven't yet been performed. Also, adjusting entries enable a company to recognize all expenses incurred during a period, regardless of when cash is paid. Without depreciation, the friends' cost of using the equipment is not taken into account. Conversely, without adjustment, the cost of rent is overstated by \$3,000 paid in advance for part of next year's rent.

With adjustments, we get an accrual income statement that provides a more complete measure of a company's operating performance and a better measure for predicting future operating cash flows. Similarly, the balance sheet provides a more complete assessment of assets and liabilities as sources of future cash receipts and disbursements.

- 2. What year-end adjustments are needed to revise the income statement? Did your friends do as well their first year as they thought? (p. 62)** Three year-end adjusting entries are needed:

| | | |
|--|--------|--------|
| Depreciation expense (\$16,000 ÷ year) | 16,000 | |
| Accumulated depreciation—equipment | | 16,000 |
| Prepaid rent (\$9,000 ÷ four months) | 3,000 | |
| Rent expense | | 3,000 |
| Unearned revenue | 13,000 | |
| Earned consulting revenue | | 13,000 |

No, your friends did not fare as well as their cash-based statement would have indicated. With appropriate adjustments, their net income is actually only \$20,000.

| | | |
|--|----------|-----------------|
| Consulting revenue (\$16,000 + 13,000) | | \$29,000 |
| Operating expenses: | | |
| Salaries | \$32,000 | |
| Rent (\$9,000 - 3,000) | 6,000 | |
| Supplies | 4,800 | |
| Utilities | 3,000 | |
| Advertising | 1,200 | |
| Depreciation | 16,000 | 63,000 |
| Net income | | <u>\$20,000</u> |

THE BOTTOM LINE

- The accounting equation underlies the process even if it captures the effect of economic events. The equation (Assets = Liabilities + Owners' Equity) implies an equality between the total economic resources of an entity (its assets) and the total claims to those resources (liabilities and equity). It also implies that each economic event affecting this equation will have a dual effect because resources always in net equal claims to those resources.
- After determining the dual effect of external events on the accounting equation, the transaction is recorded in a journal. A journal is a chronological list of transactions in debited/credit form.
- The next step in the processing cycle is to periodically transfer, or post, the debit and credit information from the journal to individual general ledger accounts. A general ledger is simply a collection of all of the company's various accounts. Each account

The next step in the processing cycle is to record in the general journal and post to the ledger accounts the effect of *internal* events on the accounting equation. These transactions do not involve an exchange transaction with another entity. They are recorded at the end of any period when financial statements must be prepared for external use. These transactions are commonly referred to as *adjusting entries*. After these entries are posted to the general ledger accounts, an adjusted trial balance is prepared.

4. The next step in the processing cycle is to record in the general journal and post to the ledger accounts the effect of internal events on the accounting equation. These transactions do not involve an exchange transaction with another entity. They are recorded at the end of any period when financial statements must be prepared for external use. These transactions are commonly referred to as *adjusting entries*. After these entries are posted to the general ledger accounts, an adjusted trial balance is prepared.

Adjusting entries can be classified into three types: (1) prepayments, (2) accruals, and (3) estimates. Prepayments are transactions in which the cash flow precedes expense or revenue recognition. Accruals involve transactions where the cash flow or inflow takes place in a period subsequent to expense or revenue recognition. Estimates for items such as future bad debts on receivables often are required to comply with the accrual accounting model.

6. The adjusted trial balance is used to prepare the financial statements. The four basic financial statements are: (1) the income statement, (2) the balance sheet, (3) the statement of cash flows, and (4) the statement of shareholders' equity. The purpose of the income statement is to summarize the profit-generating activities of the company that occurred during a particular period of time. The balance sheet presents the financial position of the company on a particular date. The statement of cash flows discloses the events that caused cash to change during the reporting period. The statement of shareholders' equity discloses the sources of the changes in the various permanent shareholders' equity accounts that occurred during the period.

7. At the end of the fiscal year a final step in the accounting processing cycle, closing, is required. The closing process serves a *final purpose*. (1) the temporary accounts (revenues and expenses), are reduced to zero balances, ready to measure activity in the upcoming accounting period, and (2) these temporary account balances are *closed (transferred) to retained earnings* to reflect the changes that have occurred in that account during the period. Often, an intermediate step is to close revenues and expenses to *income summary*. Then *income summary* is closed to *retained earnings*.

8. Cash basis accounting produces a measure called *net operating cash flow*. This measure is the difference between cash receipts and cash disbursements during a reporting period from transactions related to providing goods and services to customers. On the other hand, the accrual accounting model measures an entity's accomplishments and resource sacrifices during the period, regardless of when cash is received or paid. Accountants sometimes are called upon to convert cash basis financial statements to accrual basis financial statements, particularly for small businesses. ■



A worksheet often is used to organize the accounting information needed to prepare adjusting and closing entries and the financial statements. It is an information tool only and is not part of the accounting system. There are many different ways to design and use worksheets. We will illustrate a representative method using the financial information for the Dress Right Clothing Corporation presented in the chapter. Computerized programs such as Lotus 1-2-3 and Excel facilitate the use of worksheets.

Step 1. The account titles as they appear in the general ledger are entered in column 1 and the balances of these accounts are copied into columns 2 and 3, entitled: Unadjusted Trial Balance. The accounts are copied in the same order as they appear in the general ledger which usually is assets, liabilities, shareholders' equity, permanent accounts, revenues, and expenses. Debit and credit columns are used to make sure that the balance sheet procedure is repeated for each set of columns in the worksheet to check for accuracy.

The second step is to determine the end-of-period adjusting entries and enter them in columns 4 and 5.

The end-of-period adjusting entries are entered in columns 4 and 5.

The third step is to transfer the adjusted trial balance to columns 6 and 7.

The fourth step is to transfer the balances of the permanent accounts to columns 8 and 9.

Step 2. The end-of-period adjusting entries are determined and entered directly on the worksheet in columns 4 and 5, entitled Adjusting Entries. The adjusting entries for Dress Right Clothing Corporation were discussed in detail in the chapter and exhibited in general journal form in Illustration 2-7 on page 68. You should refer back to this illustration and trace each of the entries to the worksheet. For worksheet purposes, the entries have been numbered from (1) to (7) for easy referencing.

For example, entry (1) records the cost of supplies used during the month of July with a debit to supplies expense and a credit to supplies for \$800. A (1) is placed next to the \$800 in the debit column in the supplies expense row as well as next to the \$800 in the credit column in the supplies row. This allows us to more easily reconstruct the entry for general journal purposes and locate errors if the debit and credit columns do not balance.

Step 3. The effects of the adjusting entries are added to or deducted from the account balances listed in the Unadjusted Trial Balance columns and copied across to columns 6 and 7, entitled Adjusted Trial Balance. For example, supplies had an unadjusted balance of \$2,000. Adjusting entry (1) credited this account by \$800, reducing the balance to \$1,200.

Step 4. The balances in the temporary retained earnings accounts, revenues and expenses, are transferred to columns 8 and 9, entitled Income Statement. The difference between the total debits and credits in these columns is equal to net income or net loss. In this case, because credits (revenues) exceed debits (expenses), a net income of \$2,417 results. To balance the debits and credits in this set of columns, a \$2,417 debit entry is made in the temporary Net Income column.

Step 5. The balances in the permanent accounts are transferred to columns 10 and 11, entitled Balance Sheet. To keep the debits and credits equal in the worksheet, a \$2,417 credit must be recorded to offset the \$2,417 debit recorded in Step 4 and, labeled as net income. This credit represents the fact that when the temporary accounts are closed out to retained earnings, a \$2,417 credit to retained earnings will result. The credit in column 11, therefore, represents an increase in retained earnings for the period, that is, net income.

After the worksheet is completed, the financial statements can be prepared directly from columns 8–11. The financial statements for Dress Right Clothing Corporation are shown in Illustrations 2-9 through 2-12. The accountant must remember to then record the adjusting entries in the general journal and post them to the general ledger accounts. An adjusted trial balance should then be prepared which should be identical to the one in the worksheet. At fiscal year-end, the income statement columns can then be used to prepare closing entries. ■

Reversing Entries

Accountants sometimes use reversing entries at the beginning of a reporting period. These optional entries remove the effects of some of the adjusting entries made at the end of the previous reporting period for the sole purpose of simplifying journal entries made during the new period. If the accountant does use reversing entries, these entries are recorded in the general journal and posted to the general ledger accounts on the first day of the new period.

Reversing entries are used most often with accruals. For example, the following adjusting entry for accrued salaries was recorded at the end of July 2006 for the Dress Right Clothing Corporation in the chapter:

| | | |
|------------------|-------|-------|
| July 31 | | |
| Salaries expense | 5,500 | |
| Salaries payable | | 5,500 |

If reversing entries are not used, when the salaries actually are paid in August, the accountant needs to remember to debit salaries payable and not salaries expense.

The account balances before and after salary payment can be seen below with the use of T-accounts.

| Salaries Expense | | Salaries Payable | |
|------------------|-------|----------------------|--------------|
| Sal. July 31 | 0.000 | 5.500 | Sal. July 31 |
| | | (Cash Payment) 5.500 | |
| | | | Balance |

If the accountant for Drew Right employs reversing entries, the following entry is made on August 1, 2010:

| | | | |
|----------|------------------|-------|-------|
| August 1 | | | |
| Debit | Salaries Expense | 5.500 | |
| Credit | Salaries Payable | | 5.500 |

To reverse an accrual entry, an entry is made in the ledger at the start of July.

This entry reduces the salaries payable account to zero and reduces the salary expense account by \$5,500. When salaries actually are paid in August, the debit is to salaries expense, thus restoring the account by \$5,500.

| Salaries Expense | | Salaries Payable | |
|----------------------|--------|-------------------|--------------|
| Sal. July 31 | 10.500 | 5.500 | Sal. July 31 |
| | 5.500 | (Reversing entry) | 5.500 |
| (Cash payment) 5.500 | | | |
| Balance | 10.500 | | Balance |

We can see that balances in the accounts after cash payment is made are identical. The use of reversing entries for accruals, which is optional, simply allows cash payments or cash receipts to be entered directly into the temporary expense or revenue accounts without regard to the accruals made at the end of the previous period. ■

Subsidiary Ledgers and Special Journals

Subsidiary Ledgers

The general ledger contains what are referred to as *control accounts*. In addition to the general ledger, a subsidiary ledger contains a group of subsidiary accounts associated with a particular general ledger control account. For example, there will be a subsidiary ledger for accounts receivable that keeps track of the increases and decreases in the accounts receivable balance for each of the company's customers purchasing goods or services on credit. After all of the payments are made from the appropriate journals, the balance in the accounts receivable control account should equal the sum of the balances in the accounts receivable subsidiary ledger accounts. Subsidiary ledgers also are used for accounts payable, plant and equipment, investments, and other accounts.

An accounting system with a subsidiary ledger for accounts receivable will have a control account in the general ledger and a subsidiary ledger with particular general ledger control accounts.

Special Journals

An actual accounting system employs many different types of journals. The purpose of each journal is to record, in chronological order, the dual effect of a transaction in debit/credit form. The chapter used the general journal format to record each transaction. However, even for small companies with relatively few transactions, the general journal is used to record only a few types of transactions.

The majority of transactions are recorded in special journals. These journals capture the dual effect of *repetitive* types of transactions. For example, cash receipts are recorded in a cash receipts journal, cash disbursements in a cash disbursements journal, credit sales in a sales journal, and the purchase of merchandise on account in a purchases journal.

For most business transactions, special journals are used to capture the dual effect of a transaction in debit/credit form.

For example, cash-on-hand adjusting entries would be recorded in the general journal.

Special journals simplify the recording process in the following ways:

1. Journalizing the effects of a particular transaction is made more efficient through the use of specifically designed formats.
2. Individual transactions are not posted to the general ledger accounts but are accumulated in the special journals and a summary posting is made on a periodic basis.
3. The responsibility for recording journal entries for the repetitive types of transactions is placed on individuals who have specialized training in handling them.

The concepts of subsidiary ledgers and special journals are illustrated using the *sales journal* and the *cash receipts journal*.

Sales Journal

The purpose of the sales journal is to record all credit sales. Cash sales are recorded in the cash receipts journal. Every entry in the sales journal has exactly the same effect on the accounts; the sales revenue account is credited and the accounts receivable control account is debited. Therefore, there is only one column needed to record the debit/credit effect of these transactions. Other columns are needed to capture information for updating the accounts receivable subsidiary ledger. Illustration 2C-1 presents the sales journal for Dress Right Clothing Corporation for the month of August 2006.

All credit sales are entered in the sales journal.

ILLUSTRATION 2C-1
Sales Journal: Dress Right Clothing Corporation August 2006

| Page 1 | | | | |
|--------|--|--------------------|-------------------------|--|
| Date | Accounts Receivable
Subsidiary
Account No. | Customer Name | Sales
Invoice
No. | Cr Sales
Revenue (400)
Dr Accounts
Receivable (110) |
| | | | | |
| 2006 | | | | |
| Aug. 5 | 801 | Leland High School | 10-221 | 500 |
| 9 | 812 | Mr. John Smith | 10-222 | 200 |
| 18 | 813 | Greystone School | 10-223 | 825 |
| 22 | 803 | Ms. Barbara Jones | 10-224 | 120 |
| 29 | 805 | Hart Middle School | 10-225 | 650 |
| | | | | <u>2,295</u> |

During the month of August, the company made five credit sales, totaling \$3,295. This amount is posted as a debit to the accounts receivable control account, account number 110, and a credit to the sales revenue account, account number 400. The T-accounts for accounts receivable and sales revenue appear below. The reference 811 refers to page 1 of the sales journal.

| General Ledger | | | |
|-----------------------|-----|---------------|-------------|
| Accounts Receivable | 110 | Sales Revenue | 400 |
| July 31 Balance 2,000 | | | |
| Aug. 31 811 3,295 | | 3,295 | Aug. 31 811 |

In a computerized accounting system, as each transaction is recorded in the sales journal, the subsidiary ledger accounts for the customer involved will automatically be updated. For example, the first credit sale of the month is to Leland High School for \$500. The sales invoice number for this sale is 10-221 and the customer's subsidiary account number is 801. As this transaction is entered, the subsidiary account 801 for Leland High School is debited for \$500.

Accounts Receivable Subsidiary Ledger

| | | |
|--------------|--------------------|-----|
| | Leland High School | 851 |
| August 5 S11 | 1 500 | |

As cash is collected from this customer, the cash receipts journal records the transaction with a credit to the accounts receivable control account and a debit to cash. At the same time the accounts receivable subsidiary ledger account number 801 also is credited. After the postings are made from the special journals, the balance in the accounts receivable control account should equal the sum of the balances in the accounts receivable subsidiary ledger accounts.

Cash Receipts Journal

The purpose of the cash receipts journal is to record all cash receipts, regardless of the amount. Every transaction recorded in this journal produces a debit entry to the cash account with the credit to various other accounts. Illustration 2C-2 shows a cash receipts journal using transactions of the Dress Right Clothing Corporation for the month of August 2006.

All cash receipts are recorded in the cash receipts journal.

| Page 1 | | | | | | | ILLUSTRATION 2C-2 |
|--------|-----------------------------|----------------|-------------------------------|-------------------------|-----------|------------------|--|
| | | | | | | | Cash Receipts Journal Dress Right Clothing Corporation August 2006 |
| Date | Explanation or Account Name | Dr. Cash (100) | Cr. Accounts Receivable (110) | Cr. Sales Revenue (400) | Cr. Other | Other Accounts | |
| 2006 | | | | | | | |
| Aug. | Cash sale | 500 | | 500 | | | |
| 11 | Borrowed cash | 10,000 | | | X | Note payable 220 | |
| 17 | Leland High School | 750 | 750 | | | | |
| 20 | Cash sale | 300 | | 300 | | | |
| 25 | Mr. John Smith | 200 | 200 | | | | |
| | | | 1,500 | 800 | 10,000 | | |

Because every transaction results in a debit to the cash account, No. 100, a column is provided for that account. At the end of August, an \$11,500 debit is posted to the general ledger cash account with the source labeled CR1, cash receipts journal, page 1.

Because cash and credit sales are common, separate columns are provided for these accounts. At the end of August, a \$950 credit is posted to the accounts receivable general ledger account, No. 110, and an \$800 credit is posted to the sales revenue account, No. 400. Two additional credit columns are provided for uncommon cash receipt transactions, one for the credit amount and one for the account being credited. We can see that in August, Dress Right borrowed \$10,000 requiring a credit to the note payable account, No. 220.

In addition to the postings to the general ledger control accounts, each debit or entry is recorded in the accounts receivable column, a credit is posted to the accounts receivable subsidiary ledger account for the customer making the payment. For example, on August 17, Leland High School paid \$750 on account. The subsidiary ledger account for Leland High School is credited for \$750.

Accounts Receivable Subsidiary Ledger

| | | |
|--------------|--------------------|---------------|
| | Leland High School | 801 |
| August 5 S11 | 1 500 | |
| | | August 17 CR1 |

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 2-1 Explain the difference between external events and internal events. Give an example of each type of event.
- Q 2-2 Each accountable event or transaction will have a dual effect on financial position. Explain what is meant by this dual effect.
- Q 2-3 What is the purpose of a journal? What is the purpose of a general ledger?
- Q 2-4 Explain the difference between permanent accounts and temporary accounts. Why does an accounting system include both types of accounts?
- Q 2-5 Describe how debits and credits affect assets, liabilities, and permanent owners' equity accounts.
- Q 2-6 Describe how debits and credits affect temporary owners' equity accounts.
- Q 2-7 What is the first step in the accounting processing cycle? What role do source documents fulfill in this step?
- Q 2-8 Describe what is meant by balanced analysis.
- Q 2-9 Describe what is meant by posting, the fourth step in the processing cycle.
- Q 2-10 Describe the events that correspond in the following two journal entries:

| | | |
|-----------------------|--------|--------|
| Inventory | 20,000 | |
| Accounts payable | | 20,000 |
| 2 Accounts receivable | 30,000 | |
| Sales revenue | | 30,000 |
| Cost of goods sold | 18,000 | |
| Inventory | | 18,000 |

- Q 2-11 What is an unadjusted trial balance? An adjusted trial balance?
- Q 2-12 Define adjusting entries and discuss their purpose.
- Q 2-13 Define closing entries and their purpose.
- Q 2-14 Define prepaid expenses and provide at least two examples.
- Q 2-15 Unearned revenues represent liabilities resulting from cash received from customers in advance of providing a good or service. What adjusting journal entry is required at the end of a period to recognize the amount of unearned revenues that were earned during the period?
- Q 2-16 Define accrued liabilities. What adjusting journal entry is required to record accrued liabilities?
- Q 2-17 Describe the purpose of each of the four primary financial statements.
- Q 2-18 [Based on Appendix 2A] What is the purpose of a worksheet? Do an 11-column worksheet similar to Worksheet 2A-1. What would be the result of incorrectly transferring the balance in a liability account to column 9, the credit column under income statement?
- Q 2-19 [Based on Appendix 2B] Define reversing entries and discuss their purpose.
- Q 2-20 [Based on Appendix 2C] What is the purpose of special journals? In what ways do they simplify the recording process?
- Q 2-21 [Based on Appendix 2C] Explain the difference between the general ledger and a subsidiary ledger.

BRIEF EXERCISES

BE 2-1

Transaction analysis

- LO1

The Marchetti Soap Company entered into the following transactions during the month of June: (1) purchased inventory on account for \$3,000; (2) paid salaries to employees for work performed during the month; (3) sold merchandise that cost \$1,000 to a customer on account for \$1,200; (4) paid suppliers of inventory \$45,000; (5) paid suppliers of inventory \$45,000. Analyze each transaction and show the effect of each on the accounting equation for a corporation.

BE 2-2

Journal entries

- LO2

Prepare journal entries for each of the transactions listed in BE 2-1.

BE 2-3

Accounts

- LO3

Post the journal entries prepared in BE 2-2 to T-accounts. Assume that the opening balances in each of the accounts are as follows: cash, \$10,000; accounts payable, \$5,000; sales revenue, \$0; and cost of goods sold, \$0.

BE 3-4 Journal entries

1

BE 3-5
Adjusting entries
1. On 12/31

2. On 12/31
3. On 12/31
4. On 12/31
5. On 12/31
6. On 12/31
7. On 12/31
8. On 12/31
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97. On 12/31
98. On 12/31
99. On 12/31
100. On 12/31

BE 3-6
Income determination
1. On 12/31

BE 3-7
Financial statements
1. On 12/31

BE 3-8
Financial statements

1. On 12/31

BE 3-9
Closing entries
1. On 12/31

BE 3-10
Cash versus accrual
1. On 12/31

2. On 12/31

Prepare journal entries for each of the following transactions for a company that has a fiscal year-end of December 31. a. On October 1, 2014, was paid for a one-year fire insurance policy. b. On June 30, the company lost its chief financial officer. c. On 12/31, principal and interest are due on one year and 3% equipment costing \$100,000 was purchased at the beginning of the year for cash.

Prepare the necessary adjusting entries at December 31 for each of the items listed in BE 3-4. Depreciation on the equipment is 2.5% per year.

the adjusting journal entries prepared in BE 3-4 were correct, would net income be higher or lower and by how much?

Prepare the necessary adjusting entries at December 31, 2014, for the Jamesway Toy Company for each of the following transactions. No adjusting entries were made during the year.

- On December 20, 2014, Jamesway received a \$4,000 payment from a customer for services to be rendered in 2015. The revenue was credited to December 20, 2014, the company paid a cash advance of \$1,000 for its customers that were to be served. 20 per month, throughout December and January. Prepaid advertising was debited.
- Employee salaries for the month of December totaling \$14,000 will be paid on January 7, 2015.
- On August 31, 2014, Jamesway borrowed \$60,000 from a local bank. A note was signed with principal and 10% interest to be paid on August 1, 2015.

Of each of the adjusting journal entries reported in BE 3-7 were made, would net income, liabilities, and share holders' equity on the 12/31/14 balance sheet be higher or lower and by how much?

The following account balances were taken from the 2014 adjusted trial balance of the Bowler Corporation: sales revenue, \$325,000; cost of goods sold, \$165,000; salaries expense, \$45,000; rent expense, \$20,000; depreciation expense, \$5,000; and miscellaneous expense, \$1,000. Prepare the income statement for 2014.

The following account balances were taken from the 2014 purchasing trial balance of the Bowler Corporation: cash, \$75,000; accounts receivable, \$10,000; inventory, \$10,000; machinery and equipment, \$120,000; accumulated depreciation—machinery and equipment, \$40,000; accounts payable, \$20,000; salaries payable, \$1,000; retained earnings, \$5,000; and common stock, \$50,000. Prepare a 2014 balance sheet.

The year-end adjusted trial balance of the Thompson Food and Ice Corporation includes the following account balances: retained earnings, \$220,000; sales revenue, \$870,000; cost of goods sold, \$560,000; salaries expense, \$10,000; rent expense, \$4,000; and interest expense, \$1,000. Prepare the necessary closing entries.

Thompson is selling 1,000 shares of common stock in exchange for \$200,000 cash. During 2014 the following cash flows were recorded: cash received from customers, \$420,000; and cash paid for salaries, utilities, and advertising, \$240,000, \$35,000, and \$12,000, respectively. You also determine that customers owed the company \$50,000 and \$65,000 at the beginning and end of the year, respectively, and that the company owed the utility company \$0 and \$4,000 at the beginning and end of the year, respectively. Determine net income for 2014.

EXERCISES

Additional Web Resources: www.wiley.com/go/accounting

An alternate exercise and problem set is available on the text website: www.wiley.com/go/accounting

Section analysis

1

The following transactions occurred during March 2014 for the Wainwright Corporation. The company owns and operates a wholesale warehouse.

- Issued 30,000 shares of common stock in exchange for \$300,000 in cash.
- Purchased equipment at a cost of \$100,000, \$10,000 cash was paid and a note payable was signed for the balance owed.
- Purchased inventory on account at a cost of \$75,000. The company uses the perpetual inventory system.
- Credit sales for the month totaled \$100,000. The cost of the goods sold was \$30,000.
- Paid \$1,000 in rent on the warehouse building for the month of March.
- Paid \$0.00 in advertising company for the first and last liability insurance for a one-year period beginning April 1, 2014.
- Paid \$10,000 in cash on the 12/31/14 balance sheet.
- Collected \$55,000 in cash on the 12/31/14 balance sheet.
- Recorded depreciation expense of \$1,000 for the month on the equipment.

The Role of Accounting as an Information System

Homework

Analyze each transaction and show the effect of each on the accounting equation for a corporation.

Example

$$\begin{array}{lcl} \text{Assets} & = & \text{Liabilities} + \text{Paid-in Capital} + \text{Retained Earnings} \\ 1. \quad + \$90,000 \text{ (cash)} & & + 90,000 \text{ (common stock)} \end{array}$$

Prepare journal entries to record each of the transactions listed in Exercise 7-1.

Post the journal entries prepared in Exercise 2 to T-accounts. Assume that the opening balances in each on the accounts is zero. Prepare a trial balance from the ending account balances.

The following transactions occurred during the month of June 2006 for the Stridwell Corporation. The company owns and operates a retail shoe store.

1. Issued 100,000 shares of common stock in exchange for \$500,000 cash.
2. Purchased furniture and fixtures on a credit of \$100,000. \$40,000 was paid in cash and a note payable was signed for the balance owed.
3. Purchased inventory on account on a credit of \$200,000. The company uses the perpetual inventory system.
4. Credit sales for the month totaled \$150,000. The cost of the goods sold was \$140,000.
5. Paid \$6,000 in rent on the store building for the month of June.
6. Paid \$15,000 to an insurance company for fire and liability insurance for a one-year period beginning June 1, 2006.
7. Paid \$10,000 on account for the merchandise purchased on 3.
8. Collected \$25,000 from customers on account.
9. Paid Stridwell's cash dividend of \$5,000.
10. Recorded depreciation expense of \$2,000 for the month on the furniture and fixtures.

Reverses the amounts of prepaid insurance that expired for the month.

Required

Prepare journal entries to record each of the transactions listed above.

Listed below are 10 items that describe the accounting cycle. Write the number of each cycle step that best describes each item on the line with the item. List the items in order of the cycle, from step 1 to step 10.

List A

1. Source documents
2. Transaction analysis
3. Journal
4. Posting
5. Unadjusted trial balance
6. Adjusting entries
7. Adjusted trial balance
8. Financial statements
9. Closing entries
10. Post-closing trial balance

Worksheet

List B

1. Record the effect of a transaction in double-entry form.
2. Verify its recorded at the end of a reporting period.
3. Produce summarizing information to external decision makers.
4. Verify the owners' equity temporary accounts.
5. Determine the dual effect on the accounting equation.
6. List the accounts and their balances before recording adjusting entries.
7. List the accounts and their balances after recording closing entries.
8. List the accounts and their balances after recording adjusting entries.
9. Verify the organizing information not part of the formal accounting system.
10. Transfer the balances from the journal to the ledger.
11. Identify and process external transactions.

Indicate whether a debit will increase or decrease each of the following accounts.

Increase (I) or
Decrease (D)

Account

| | |
|----|----------------------|
| 1 | Pay |
| 2 | Prepaid Insurance |
| 3 | Accounts Payable |
| 4 | Prepaid Rent |
| 5 | Salaries Expense |
| 6 | Interest Expense |
| 7 | Dividends |
| 8 | Cost of Goods Sold |
| 9 | Depreciation Expense |
| 10 | Retained Earnings |

E 2-2

Journal entries

LO2

E 2-3

T-accounts and trial balance

LO3

E 2-4

Journal entries

LO2

E 2-5

The accounting

processing cycle

LO2 through LO7

E 2-6

Debits and credits

LO2

Transaction analysis, debits and credits

• 20

| | |
|---|--------------------------------------|
| 1 | Accounts receivable |
| 2 | Allowance for uncollectible accounts |
| 3 | Sold dual expenses |
| 4 | Interest expense |
| 5 | Interest revenue |
| 6 | Gain on sale of equipment |

Some of the ledger accounts for the Sawhorse Furniture Company are summarized and listed below. For each of the October 2006 transactions numbered through 2 below, indicate by account number which accounts should be debited and credited. The company uses the perpetual inventory system. Assume the appropriate adjusting entries were made at the end of September.

| | | |
|-----------------------|------------------|---------------------|
| 7 Accounts payable | equipment | 31 inventory |
| 8 Accounts receivable | or | 32 supplies |
| 9 Sales revenue | 18 Prepaid rent | 33 Sales revenue |
| 10 Retained earnings | 9 Sales payable | 34 common stock |
| 35 Interest expense | 10 Sales expense | 35 Wages payable |
| 36 Gain on goods sold | 11 Sales expense | 36 Interest expense |

| | Account(s) Debited | Account(s) Credited |
|---------|--------------------|---------------------|
| Example | 1 | 5 |

Purchased inventory on credit

- Paid rent for the new three months.
- Paid for the new three months.
- Purchased inventory on account.
- Purchased supplies for cash.
- Paid employees wages for September.
- Issued common stock in exchange for cash.
- Collected cash from customers for goods sold in 1.
- Borrowed cash from a bank and had a note.
- As the end of October, purchased the amount of supplies that had been used during the month.
- Received advance payment from customer.
- Accrued employee wages for October.

Preparing entries

• 20

Prepare the necessary adjusting entries on December 31, 2006, for the Fairwell Company for each of the following situations. Assume that no financial statements were prepared during the year and no adjusting entries were recorded.

- A three-year fire insurance policy was purchased on July 1, 2006, for \$12,000. The company debited insurance expense in the entire amount.
- Depreciation on equipment is \$1,000 for the year.
- The company determines that accounts receivable to the amount of \$6,000 will probably not be collected. The allowance for uncollectible accounts account has a credit balance of \$2,000 before any adjustment.
- Employee salaries of \$ 8,000 for the month of December will be paid in early January 2007.
- On November 2006, the company borrowed \$200,000 from a bank. The note requires principal and interest at 12% to be paid in April 2007.
- On December 1, 2006, the company received \$3,000 in cash from another company that is renting office space in Fairwell's building. The payment, representing rent for December and January, was recorded as follows:

Preparing entries

• 20

Prepare the necessary adjusting entries on December 31, 2006, for the Murchip Company for each of the following situations. Assume that no financial statements were prepared during the year and no adjusting entries were recorded.

- On October 1, 2006, Murchip lent \$60,000 to another company. A note was signed with principal and 8% interest to be paid on September 30, 2007.
- On November 1, 2006, the company paid its landlord \$6,000 representing rent for the months of November through January. Prepaid rent was debited.
- On August 1, 2006, collected \$12,000 in advance rent from another company that is renting a portion of Murchip's factory. The \$12,000 represents one year's rent and the entire amount was credited to rent revenue.
- Depreciation on machinery is \$4,000 for the year.
- Vacation pay for the year that had been earned by employees but not paid to them or recorded as liability.
- Murchip began the year with \$2,000 in its asset account, supplies. During the year \$6,000 in supplies were purchased and debited to supplies. At year-end, supplies costing \$3,200 remain on hand.

E 2-10 Financial statements and closing entries

• 10-16, 10-17

The November 30, 2006, adjusted trial balance for the Division Cheese Corporation is presented below.

| Account Title | Debits | Credits |
|--------------------------------------|-----------|-----------|
| Cash | 21,000 | |
| Accounts receivable | 350,000 | |
| Allowance for uncollectible accounts | | 20,000 |
| Prepaid rent | 10,000 | |
| Inventory | 50,000 | |
| Equipment | 400,000 | |
| Accumulated depreciation—equipment | | 250,000 |
| Accounts payable | | 40,000 |
| Notes payable (due in six months) | | 40,000 |
| Salaries payable | | 8,000 |
| Interest payable | | 2,000 |
| Common stock | | 400,000 |
| Retained earnings | | 150,000 |
| Sales revenue | | 800,000 |
| Cost of goods sold | 480,000 | |
| Salaries expense | 20,000 | |
| Rent expense | 30,000 | |
| Depreciation expense | 20,000 | |
| Interest expense | 4,000 | |
| Bad debt expense | 5,000 | |
| Totals | 1,480,000 | 1,480,000 |

Required

1. Prepare an income statement for the year ended December 31, 2006, and a classified balance sheet as of December 31, 2006.
2. Prepare the necessary closing entries at December 31, 2006.

E 2-11 Closing entries

• 10-17

Assessing Chip Corporation's fiscal year-end is December 31. The following is a partial adjusted trial balance as of December 31, 2006:

| Account Title | Debits | Credits |
|----------------------|---------|---------|
| Retained earnings | | 80,000 |
| Sales revenue | | 750,000 |
| Interest revenue | | 2,000 |
| Cost of goods sold | 420,000 | |
| Salaries expense | 20,000 | |
| Rent expense | 15,000 | |
| Depreciation expense | 30,000 | |
| Interest expense | 5,000 | |
| Insurance expense | 6,000 | |

Required

Prepare the necessary closing entries at December 31, 2006.

E 2-12 Cash versus accrual accounting; adjusting entries

• 10-1, 10-5

In Highland Glass Sales Company, prepaid insurance is recorded as an asset. The November 30 and December 31, 2006, trial balances contained the following account information:

| | Nov. 30 | | Dec. 31 | |
|-----------------------|---------|--------|---------|--------|
| | Dr. | Cr. | Dr. | Cr. |
| Supplies | 1,500 | | 3,000 | |
| Prepaid insurance | 6,000 | | 4,500 | |
| Wages payable | | 10,000 | | 15,000 |
| Unearned rent revenue | | 2,000 | | 1,500 |

The following information also is available:

- a. The December income statement reflected \$7,500 in supplies expense.
- b. No insurance payments were made in December.
- c. \$3,000 was paid to employees during December for wages.
- d. On November 1, 2006, a tenant paid Highland \$3,000 in advance rent for the period November through January. Unearned rent revenue was credited.

Required

1. What was the cost of supplies purchased during December?
2. What was the adjusting entry recorded at the end of December for prepaid insurance?

E 2-3

Financial transactions
and adjusting entries

• 10 min

- What was the adjusting entry recorded at the end of December for accrued wages?
- What was the amount of net revenue earned in December? What adjusting entry was recorded at the end of December for accrued revenue?

The following transactions occurred during 2006 for the Beehive Honey Corporation:

- Feb. 1 Borrowed \$4,000 from a bank and signed a note. Principal and interest at 10% will be paid on September 1, 2007.
- Apr. 1 Paid \$3,600 to an insurance company for a two-year fire insurance policy.
- July 1 Purchased supplies costing \$2,000 on account. The company records supplies purchased in an asset account. At the end of the year, year-end supplies costing \$1,250 remained on hand.
- Nov. 1 A customer borrowed \$10,000 and signed a note requiring the customer to pay principal and interest on April 1, 2007.

Required:

- Record each transaction in general journal form. Give explanations.
- Prepare any necessary adjusting entries at the December 31, 2006, year-end. No adjusting entries were made during the year for any item.

E 2-4

Accrual accounting
and determination

• 10 min

During the course of your examination of the financial statements of the Hulse Corporation for the year ended December 31, 2006, you discover the following:

- All statements (only covering three years) was prepared in January, 2007, for 2006. The entire amount was debited to insurance expense and no adjusting entry was made for 2006.
- During 2006, the company received a \$1,000 cash advance from a customer for merchandise to be manufactured and shipped in 2007. The \$1,000 was credited to sales revenue. No entry was made for the cost of merchandise.
- There were no supplies listed on the balance sheet under assets. However, you discover that supplies costing \$1,500 were on hand at the end of the year.
- Hulse borrowed \$20,000 from a local bank on October 1, 2006. Principal and interest at 12% will be paid on September 30, 2007. No accrual was made for interest.
- The income reported in the 2006 income statement is \$50,000 before reflecting any of the above items.

Required:

Determine the proper amount of net income for 2006.

E 2-5

Cash versus accrual
accounting

• 10 min

SUNSHINE AND JUNKET LAWN SERVICE Company sells lawnmowers in trucks on a cash basis. However, the company recently borrowed \$200,000 from a local bank and the bank requires SUNSHINE to provide annual financial statements prepared on an accrual basis. During 2006, the following cash flows were recorded:

| | | |
|-------------------------------|-----------|-----------|
| Cash collected from customers | | \$320,000 |
| Cash paid for: | | |
| Salaries | \$180,000 | |
| Supplies | 28,000 | |
| Rent | 12,000 | |
| Insurance | 8,000 | |
| Miscellaneous | 20,000 | 248,000 |
| Net operating cash flow | | \$ 72,000 |

You are able to determine the following information about accounts receivable, prepaid expenses, and current liabilities:

| | January 1, 2006 | December 31, 2006 |
|--|-----------------|-------------------|
| Accounts receivable | \$62,000 | \$24,000 |
| Prepaid insurance | 0 | 2,000 |
| Supplies | 1,000 | 1,500 |
| Accrued liabilities (for miscellaneous expenses) | 2,400 | 3,400 |

In addition, you learn that the bank loan was paid September 30, 2006, with principal and interest at 6% due on the day before and no other cash payments were made during the year.

Required:

Prepare an accrual-based income statement for 2006. Ignore income taxes.

E 2-6

Worksheet Based on
Problems 2-3

The December 31, 2006, unadjusted trial balance for the Workstein Drug Company is presented below. The entries with a check mark are correct.

| Account Title | Debits | Credits |
|--------------------------------------|----------------|----------------|
| Cash | 20,000 | |
| Accounts receivable | 25,000 | |
| Allowance for uncollectible accounts | | 2,000 |
| Prepaid rent | 5,000 | |
| Inventory | 50,000 | |
| Equipment | 100,000 | |
| Accumulated depreciation—equipment | | 30,000 |
| Accounts payable | | 23,000 |
| Wages payable | | 0 |
| Common stock | | 100,000 |
| Retained earnings | | 29,000 |
| Sales revenue | | 323,000 |
| Cost of goods sold | 190,000 | |
| Wage expense | 74,000 | |
| Rent expense | 30,000 | |
| Depreciation expense | 0 | |
| Utility expense | 72,000 | |
| Bad debt expense | 4,000 | |
| Totals | 507,000 | 507,000 |

The following year-end adjusting entries are required:

- Depreciation expense for the year ended December 31 is \$0.000.
- The company has determined that the allowance for uncollectible accounts should be \$5,000.
- Accrued wages payable at year-end should be \$4,000.

Required:

- Prepare and complete a worksheet similar to Illustration 2A-4.
- Prepare an income statement for 2006 and a balance sheet as of December 31, 2006.

E 2-7

Reversing entries
(Based on Appendix
2B)

LO4

The employees of Xitrex, Inc., are paid each Friday. The company's fiscal year-end is June 30, which falls on a Wednesday for the current year. Wages are earned evenly throughout the five-day workweek, and \$10,000 will be paid on Friday, July 2.

Required:

- Prepare an adjusting entry to record the accrued wages as of June 30, a reversing entry on July 1, and an entry to record the payment of wages on July 2.
- Prepare journal entries to record the accrual of wages as of June 30 and the payment of wages on July 2 assuming a reversing entry is not made.

E 2-8

Reversing entries
(Based on Appendix
2B)

LO4

Refer to Exercise 2-7 and respond to the following requirements:

Required:

- If Microchip's accountant employed reversing entries, which adjusting entries would she initially reverse at the beginning of the following year?
- Prepare the adjusting entries at the end of 2006 for the adjustments year identified in requirement 1.
- Prepare the appropriate reversing entries at the beginning of 2007.

E 2-9

Special journals (Based
on Appendix 2C)

LO2

The White Company's accounting system consists of a general journal (GJ), a cash receipts journal (CRJ), a cash disbursements journal (CDJ), a sales journal (SJ), and a purchases journal (PJ). For each of the following, indicate which journal should be used to record the transaction.

| Transaction | Journal |
|---|---------|
| 1. Purchased merchandise on account | |
| 2. Collected an account receivable | |
| 3. Borrowed \$20,000 and signed a note | |
| 4. Recorded depreciation expense | |
| 5. Purchased equipment for cash | |
| 6. Sold merchandise for cash (the sale is not the cost of the merchandise) | |
| 7. Sold merchandise on credit (the sale is not the cost of the merchandise) | |
| 8. Recorded accrued wages payable | |
| 9. Paid employee wages | |
| 10. Sold equipment for cash | |
| Sold equipment for cash | |
| 11. Paid a cash dividend to shareholder | |
| 12. Issued common stock in exchange for cash | |
| 13. Paid no. 1000's payable | |

PROBLEMS

An alternate exercise and problem set is available on the text website: www.mhhe.com/spiceland4e

P
Accounting cycle
through unadjusted
trial balance

• 12-103

Heflinger Jammer Products Company began business on January 1, 2006. During January, the following transactions occurred:

- 1 Issued common stock for cash for \$100,000 cash.
- 2 Purchased inventory on account for \$35,000 (the perpetual inventory system is used).
- 4 Paid an insurance company \$2,400 for a one-year insurance policy.
- 6 Sold merchandise on account for \$5,000. The cost of the merchandise was \$2,000.
- 15 Borrowed \$20,000 from a local bank and signed a note. Principal and interest at 10% is to be paid back later.
- 20 Paid employees \$6,000 wages for the first half of the month.
- 22 Sold merchandise for \$10,000 cash. The cost of the merchandise was \$6,000.
- 24 Paid \$1,000 accounts payable for the furniture purchased on January 2.
- 26 Collected \$6,000 on account from customers.
- 28 Paid \$1,000 to the local company for January gas and electricity.
- 31 Paid \$1,000 rent for the building. \$2,000 was for January rent and \$2,000 for February rent.

Required

- 1 Prepare general journal entries to record each transaction. Omit explanations.
- 2 Post the entries to the ledger.
- 3 Prepare an unadjusted trial balance as of January 31, 2006.

P
Accounting cycle
through unadjusted
trial balance

• 12-104

The following is the post-closing trial balance for the Whitlow Manufacturing Corporation as at December 31, 2015:

| Account Title | Debits | Credits |
|------------------------------------|--------|---------|
| Cash | 5,000 | |
| Accounts receivable | 2,000 | |
| Inventory | 5,000 | |
| Equipment | 11,000 | |
| Accumulated depreciation—equipment | | 3,500 |
| Accounts payable | | 3,000 |
| Common stock | | 10,000 |
| Retained earnings | | 6,500 |
| Sales revenue | | 0 |
| Cost of goods sold | 0 | |
| Wages expense | 0 | |
| Rent expense | 0 | |
| Advertising expense | 0 | |
| Totals | 23,000 | 23,000 |

The following transactions occurred during January 2016:

- 1 Sold merchandise for cash \$3,500. The cost of the merchandise was \$2,000. The company uses the perpetual inventory system.
- 2 Purchased equipment on account for \$5,500 from the Strong Company.
- 4 Received a \$150 bill from the local newspaper for an advertisement that appeared in the paper on January 2.
- 8 Sold merchandise on account for \$5,000. The cost of the merchandise was \$2,500.
- 10 Purchased merchandise on account for \$9,500.
- 13 Purchased equipment on cash \$800.
- 16 Paid the entire amount due to the Strong Company.
- 18 Received \$4,000 from a customer on account.
- 20 Paid \$1,000 to the owner of the building for January's rent.
- 30 Paid employees \$3,000 for wages for the month of January.
- 31 Paid a cash dividend of \$1,000 to shareholders.

Required

- 1 Set up T-accounts and enter the beginning balances as of January 1, 2016.
- 2 Prepare general journal entries to record each transaction. Omit explanations.
- 3 Post the entries to the ledger.
- 4 Prepare an unadjusted trial balance as of January 31, 2016.

P 2-3 Adjusting entries

Excel

Excel

Pastina Company manufactures and sells various types of pasta to grocery chains in private label brands. The company's fiscal year-end is December 31. The unadjusted trial balance as of December 31, 2006, is given below.

| Account Title | Debits | Credits |
|--------------------------------------|----------------|----------------|
| Cash | 30,000 | |
| Accounts receivable | 40,000 | |
| Allowance for uncollectible accounts | | 3,000 |
| Supplies | 1,500 | |
| Inventory | 60,000 | |
| Note receivable | 20,000 | |
| Interest receivable | 0 | |
| Prepaid rent | 2,000 | |
| Prepaid insurance | 0 | |
| Equipment | 80,000 | |
| Accumulated depreciation—equipment | | 80,000 |
| Accounts payable | | 28,000 |
| Wages payable | | 0 |
| Note payable | | 50,000 |
| Interest payable | | 0 |
| Unearned revenue | | 0 |
| Common stock | | 60,000 |
| Retained earnings | | 24,500 |
| Sales revenue | | 48,000 |
| Interest revenue | | 0 |
| Cost of goods sold | 10,000 | |
| Wage expense | 6,500 | |
| Rent expense | 1,500 | |
| Depreciation expense | 0 | |
| Interest expense | 0 | |
| Supplies expense | 1,500 | |
| Insurance expense | 6,000 | |
| Bad debt expense | 5,000 | |
| Totals | 343,500 | 343,500 |

Information necessary to prepare the year-end adjusting entries appears below.

- Depreciation on the equipment for the year is \$6,000.
- The company estimates that of the \$40,000 in accounts receivable outstanding at year-end, \$3,000 probably will not be collected.
- Employee wages are paid twice a month on the 27th for wages earned from the 1st through the 15th and on the 7th of the following month for wages earned from the 16th through the end of the month. Wages earned from December 16 through December 31, 2006, were \$4,500.
- On October 1, 2006, Pastina borrowed \$50,000 from a local bank and signed a note. The note requires interest to be paid annually on September 30 at 12%. The principal is due in 10 years.
- On March 1, 2006, the company lent a supplier \$20,000 and a note was signed requiring principal and interest at 8% to be paid on February 28, 2007.
- On April 1, 2006, the company paid an insurance company \$6,000 for a two-year fire insurance policy. The entire \$6,000 was debited to Insurance Expense.
- \$100 of supplies remained on hand at December 31, 2006.
- A customer paid Pastina \$2,000 in December for 1,000 pounds of spaghetti to be manufactured and delivered in January 2007. Pastina credited sales revenue.
- On December 1, 2006, \$2,000 rent was paid to the owner of the building. The payment represented rent for December and January 2007 at \$1,000 per month.

Required

Prepare the necessary December 31, 2006, adjusting journal entries.

P 2-4

Accounting cycle
adjusting entries
closing entries
post-closing
trial balance

Excel

Excel

Refer to Problem 2-3 and complete the following steps.

- Enter the unadjusted balances from the trial balance into T-accounts.
- Post the adjusting entries prepared in Problem 2-3 to the accounts.
- Prepare an adjusted trial balance.
- Prepare an income statement and a statement of shareholders' equity for the year ended December 31, 2006, and a classified balance sheet as of December 31, 2006. Assume that no common stock was issued during the year and that \$4,000 in cash dividends were paid to shareholders during the year.
- Prepare closing entries and post to the accounts.
- Prepare a post-closing trial balance.

Problem 1

Adjusting entries

10 min

Howard Company's fiscal year-end is December 31. Below are the unadjusted and adjusted trial balances for December 31, 2005.

| Account Title | Unadjusted | | Adjusted | |
|--------------------------------------|------------|---------|----------|---------|
| | Debits | Credits | Debits | Credits |
| cash | 50,000 | | 50,000 | |
| Accounts receivable | 25,000 | | 35,000 | |
| Allowance for uncollectible accounts | | 2,000 | | 2,500 |
| Prepaid rent | 2,000 | | 200 | |
| Supplies | 500 | | 800 | |
| Inventory | 60,000 | | 60,000 | |
| Notes payable | 30,000 | | 30,000 | |
| Interest payable | 0 | | 500 | |
| Equipment | 45,000 | | 45,000 | |
| Accumulated depreciation—equipment | | 5,000 | | 25,000 |
| Accounts payable | | 32,000 | | 32,000 |
| Wages payable | | 0 | | 6,200 |
| Notes payable | | 50,000 | | 50,000 |
| Interest payable | | 0 | | 2,500 |
| Unearned rent revenue | | 0 | | 2,000 |
| Common stock | | 46,000 | | 46,000 |
| Retained earnings | | 20,000 | | 22,000 |
| Sales revenue | | 244,000 | | 244,000 |
| Rent revenue | | 6,000 | | 4,000 |
| Interest revenue | | 0 | | 1,500 |
| Cost of goods sold | 126,000 | | 25,000 | |
| Wage expense | 45,000 | | 5,200 | |
| Rent expense | 1,000 | | 7,000 | |
| Depreciation expense | 0 | | 5,000 | |
| Supplies expense | 500 | | 400 | |
| Interest expense | 5,000 | | 400 | |
| Bad debt expense | 2,000 | | 4,500 | |
| Totals | 415,000 | 415,000 | 437,000 | 437,000 |

Required

Prepare the adjusting journal entries that were made at December 31, 2005.

Problem 2

Accounting cycle

10 min

Excel

The general ledger of the Kaurin Company, a consulting company, at January 1, 2016, contained the following account balances:

| Account Title | Debits | Credits |
|--------------------------------------|--------|---------|
| cash | 30,000 | |
| Accounts receivable | 15,000 | |
| Allowance for uncollectible accounts | | 500 |
| Equipment | 20,000 | |
| Accumulated depreciation | | 4,000 |
| Salaries payable | | 2,000 |
| Common stock | | 40,000 |
| Retained earnings | | 4,500 |
| Totals | 65,000 | 65,000 |

The following is a summary of the transactions for the year:

- Sales of services, \$100,000, of which \$25,000 was on credit.
- Collection of accounts receivable, \$12,000.
- Issued shares of common stock in exchange for \$10,000 in cash.
- Paid salaries \$50,000 for which \$2,000 was for salaries payable.
- Paid interest expense of \$2,000.
- Declared and paid dividends for \$1,000 in cash.
- Paid \$2,000 in cash dividends to shareholders.

Required

- Set up the necessary T-accounts and enter the beginning balances from the trial balance.
- Prepare a general journal entry for each of the summary transactions listed above.
- Post the journal entries to the accounts.
- Prepare an unadjusted trial balance.

4-7

Adjusting entries and income effects

• OBJECTIVES

P 2-8

Adjusting entries

• OBJECTIVES

5. Prepare and post adjusting journal entries. Accrued salaries at year-end amounted to \$1,000. Depreciation for the year on the equipment is \$2,000. The allowance for uncollectible accounts is estimated at \$1,000.
6. Prepare an adjusted trial balance.
7. Prepare an income statement for 2006 and a balance sheet as of December 31, 2006.
8. Prepare and post closing entries.
9. Prepare a post-closing trial balance.

The information necessary for preparing the 2006 year-end adjusting entries for Vito's Plaza Parkin appears below. Vito's fiscal year-end is December 31.

- a. On July 1, 2006, purchased \$10,000 of 10% corporate bonds at face value. The bonds pay interest twice a year on January 1 and July 1. The annual interest rate is 2%.
- b. Vito's depreciable equipment has a cost of \$34,000, a five-year life, and no salvage value. The equipment was purchased in 2004. The straight-line depreciation method is used.
- c. On November 1, 2006, the bar paper was used by Jack Thompson for one year. Vito's received \$6,000 representing the first six months' rent and credited unearned rent revenue.
- d. On April 1, 2006, the company paid \$2,400 for a two-year fire and theft insurance policy and debited insurance expense.
- e. On October 1, 2006, the company borrowed \$20,000 from a local bank and signed a note. Principal and interest at 12% will be paid on September 30, 2007.
- f. At year-end there is a \$1,000 debit balance in the supplies (asset) account. Only \$700 of supplies remain on hand.

Requirements

1. Prepare the necessary adjusting journal entries as of December 31, 2006.
2. Determine the amount by which net income would be overstated if Vito's failed to make these adjusting entries. Ignore income tax effects.

Facilithor Corporation manufactures and sells video games for personal computers. The unaudited trial balance as of December 31, 2006, appears below. Assume a calendar year-end. The company uses the perpetual inventory system.

| Account Title | Debits | Credits |
|--------------------------------------|---------|---------|
| Cash | 20,000 | |
| Accounts receivable | 30,000 | |
| Allowance for uncollectible accounts | | 100 |
| Supplies | 0 | |
| Prepaid rent | 0 | |
| Inventory | 80,000 | |
| Equipment | 75,000 | |
| Accumulated depreciation—equipment | | 10,000 |
| Accounts payable | | 20,000 |
| Wages payable | | 3,000 |
| Notes payable | | 30,000 |
| Dividend income | | 30,000 |
| Retained earnings | | 6,050 |
| Sales revenue | | 300,000 |
| Cost of goods sold | 85,000 | |
| Interest expense | 0 | |
| Wages expense | 37,250 | |
| Rent expense | 4,000 | |
| Supplies expense | 1,000 | |
| Utility expense | 5,000 | |
| Bad debt expense | 0 | |
| Totals | 343,250 | 343,750 |

Information necessary to prepare the year-end adjusting entries appears below.

The equipment was purchased in 2004 and is being depreciated using the straight-line method over an eight-year useful life with no salvage value.

2. Accrued wages at year-end should be \$4,000.
3. The company estimates that 2% of all year-end accounts receivable will probably not be collected.
4. The company borrowed \$30,000 on September 1, 2006. The principal is due to be repaid on 10 years' interest is payable twice a year on each August 31 and February 28 at an annual rate of 10%.
5. The company debits supplies expense as supplies are purchased. Supplies on hand at year-end cost \$500.
6. Prepaid rent at year-end should be \$1,000.

Required

Prepare the necessary December 31, 2006, adjusting entries.

Selected balance sheet information for the Wolf Company at November 30 and December 31, 2006, is provided below. The company uses the perpetual inventory system and all sales to customers are made on credit.

| | Nov. 30 | | Dec. 31 | |
|---------------------|---------|--------|---------|--------|
| | Dr. | Cr. | Dr. | Cr. |
| Accounts receivable | 10,000 | | 3,000 | |
| Prepaid insurance | 5,000 | | 7,500 | |
| Inventory | 7,000 | | 6,000 | |
| Accounts payable | | 12,000 | | 13,000 |
| Wages payable | | 5,000 | | 3,000 |

The following cash flow information also is available:

- Cash collected from credit sales is \$9,400.
- Cash paid for insurance is \$5,000.
- Cash paid to suppliers of inventory is \$10,000 (the entire accounts payable amounts relate to inventory purchases).
- Cash paid to employees for wages is \$3,000.

Required

Determine the following for the month of December:

- Sales revenue.
 - Cost of goods sold.
 - Wages expense.
2. Prepare a summary journal entry to record the credits sales had over all these sales.

The unadjusted trial balance as of December 31, 2006, for the Bagley Consulting Company appears below. December 31 is the company's fiscal year-end.

| Account Title | Debits | Credits |
|--------------------------------------|---------|---------|
| Cash | 8,000 | |
| Accounts receivable | 9,000 | |
| Allowance for uncollectible accounts | | 50 |
| Prepaid insurance | 3,000 | |
| Land | 200,000 | |
| Buildings | 50,000 | |
| Accumulated depreciation—buildings | | 20,000 |
| Equipment | 100,000 | |
| Accumulated depreciation—equipment | | 40,000 |
| Accounts payable | | 35,000 |
| Salaries payable | | 0 |
| Unearned rent revenue | | 0 |
| Common stock | | 200,000 |
| Retained earnings | | 54,450 |
| Sales revenue | | 40,000 |
| Interest revenue | | 3,000 |
| Rent revenue | | 7,500 |
| Sales expense | 37,000 | |
| Bad debt expense | 0 | |
| Depreciation expense | 0 | |
| Insurance expense | 0 | |
| Office expense | 10,000 | |
| Utilities expense | 5,000 | |
| Maintenance expense | | |
| Totals | 452,000 | 452,000 |

Required

List the account balances in T-accounts.

- From the trial balance and information given, prepare adjusting entries and post to the accounts.
 - The buildings have an estimated useful life of 50 years with no salvage value. The company uses the straight-line depreciation method.
 - The equipment is depreciated at 10 percent of original cost per year.
 - Prepaid insurance expired during the year, \$3,500.

1. Cash versus accrual accounting

2. Accounting cycle, preparation of balance through closing

PROBLEM

Accounting
financial statements

PROBLEM

- It is estimated that 4% of the accounts receivable balance will be uncollectible.
 - Accrue salaries at year-end, \$1,500.
 - Unearned rent revenue at year-end should be \$1,200.
- Prepare an adjusted trial balance.
 - Prepare closing entries.
 - Prepare a post-closing trial balance.

McGuire Corporation began operations in 2006. The company purchases computer equipment from manufacturers and then sells the computers to other companies. The company uses a clerk to record all cash receipts and disbursements. The following is a receipt of the cash receipts and disbursements made during the year.

| | |
|--|-------------------|
| Cash receipts | |
| Sale of common stock | \$ 50,000 |
| Collection from customers | 870,000 |
| Butcher and Co. paid for April note signed requiring principal and interest of \$25,000 to be paid on March 31, 2007 | 40,000 |
| Total cash receipts | \$ 965,000 |
| Cash disbursements | |
| Purchase of merchandise | \$ 220,000 |
| Payment of salaries | 80,000 |
| Purchase of equipment | 50,000 |
| Payment of rent on building | 4,000 |
| Miscellaneous expenses | 6,000 |
| Total cash disbursements | \$ 360,000 |

You are called in to prepare financial statements at December 31, 2006. The following additional information was provided to you:

- Customers owed the company \$22,000 at year-end. Of this amount, it was anticipated that \$3,000 would probably not be collected. There were no actual bad debt write-offs in 2006.
- At year-end, \$30,000 was still due to suppliers of merchandise purchased on credit.
- An year-end merchandise inventory counting \$50,000 still remained on hand.
- Salaries owed to employees at year-end amounted to \$1,500.
- On December 1, \$3,000 in rent was paid to the owner of the building used by McGuire. This represented rent for the months of December through February.
- The equipment, which has a 5-year life and no salvage value, was purchased on January 1, 2006. Straight-line depreciation is used.

Required

Prepare an income statement for 2006 and a balance sheet as of December 31, 2006.

P 2-17

Worksheet Based on
Appendix 2A

PROBLEM

Excel

Using the information from Problems 2-8, prepare and complete a worksheet similar to Illustration 2A-1. Use the information in the worksheet to prepare an income statement and a statement of shareholders' equity for 2006 and a balance sheet as of December 31, 2006. Cash dividends paid to shareholders during the year amounted to \$5,000. Also prepare the necessary closing entries assuming that adjusting entries have been correctly posted to the accounts.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it to real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

You have recently been hired by David & Company, a small public accounting firm. One of the firm's partners, Alice Davis, has asked you to deal with a disgruntled client. Mr. Sam, the owner of the city's largest hardware store, Mr. Plu is applying for a loan to remodel his store. The bank requires several based financial statements but Mr. Plu has always kept the company's records on a cash basis. He does not use the purpose of accrual-based statements. His most recent outburst went something like this: "After all, it's either cash, not customers, pay my bills in cash, and I am going to pay the bank loan with cash. And I already show my buildings and equipment as assets with depreciation I don't have to recognize, the problem!"

Write and:

1. Explain the difference between a cash basis and an accrual basis measure of performance.
2. Why, in most cases, does accrual basis net income provide a better measure of performance than net operating cash flow?
3. Explain the purpose of adjusting entries as they relate to the difference between cash and accrual accounting.

Refer to Case 2 above. Mr. Plu has consented and agrees to provide you with the information necessary to convert his cash basis financial statements to accrual basis statements. He provides you with the following transaction information for the fiscal year ending December 31, 2006:

1. A comprehensive insurance policy requires a payment every year for the upcoming year. The new payment of \$4,000 was made on September 1, 2006.
2. Mr. Plu allows customers to pay using a credit card. At the end of the current year, several credit card companies owed Mr. Plu \$8,000. At the end of last year, customer credit card charges outstanding were \$5,000.
3. Employees are paid once a month, up the 15th of the month following the work period. Cash disbursements to employees were \$16,000 and \$17,000 for January 1, 2007, and January 15, 2006, respectively.
4. Utility bills outstanding totaled \$1,000 at the end of 2006 and \$900 at the end of 2005.
5. A physical count of inventory is always taken at the end of the fiscal year. The merchandise on hand at the end of 2006 and 2005, inventory on hand was \$15,000. At the end of 2005, inventory on hand was \$12,000.
6. At the end of 2006, Mr. Plu did not have any bills outstanding to suppliers of merchandise. However, at the end of 2005, he owed suppliers \$4,000.

Required:

1. Mr. Plu's 2006 cash basis net income (including depreciation expense) is \$26,000. Determine net income using the accrual basis accounting model.

2. Explain the effect on Mr. Plu's net income of the following items and indicate the required adjusting entries and amounts required to change basis accounting to accrual accounting.

"I don't understand," complained Chris, who responded to your bulletin board posting as your responsibility. He was a junior. The complaint was in response to your statement that recording adjusting entries is a critical step in the accounting process. Write, and the two major classifications of adjusting entries are prepayments and accruals.

Write and:

Respond to Chris:

1. "When do prepayments occur?" Ask, "What?"
2. Describe the appropriate adjusting entry for prepaid expenses and for unearned revenues. What is the effect on net income, assets, liabilities, and shareholders' equity of not recording a required adjusting entry for prepayments?
3. Describe the required adjusting entry for accrued liabilities and for accrued receivables. What is the effect on net income, assets, liabilities, and shareholders' equity of not recording a required adjusting entry for accruals?

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix B located at the back of this text.

Required:

1. Determine the amount of cash paid to or in behalf of employees for salaries and benefits during the 2004 fiscal year.
2. Assuming that spare parts and supplies are used for maintenance and repairs, determine the combined expense of cash paid for salaries and wages and repairs and spare parts, supplies, and fuel purchased during the 2004 fiscal year.
3. What is the amount of depreciation and amortization recorded during the 2004 fiscal year?

3

CHAPTER

The Balance Sheet and Financial Disclosures

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Describe the purpose of the balance sheet and understand its usefulness and limitations.
- LO2 Distinguish among current and noncurrent assets and liabilities.
- LO3 Identify and describe the various balance sheet classifications.
- LO4 Identify and describe the two balance sheet liability applications.
- LO5 Explain the purpose of financial statement disclosure.
- LO6 Explain the purpose of the management discussion and analysis disclosure.
- LO7 Explain the purpose of an audit and describe the content of the audit report.
- LO8 Describe the techniques used by financial analysts to confirm financial information and forms used by them for analysis.
- LO9 Identify and calculate the common liquidity and financing ratios used to assess risk.



What's It Worth?

"I can't believe it! Why don't you distributors prepare financial statements that are relevant?" Your supervisor is a market researcher who is constantly hounding you about what he perceives to be a lack of relevance. Financial statements are prepared as an ongoing process that attempts to answer questions. For example, take a look at his balance sheet for 2004. The sheet was downloaded off the Internet to demonstrate why the company is valuable. It includes all those hot video games like Madden NFL 05 and Madden NFL 04. Anyway, he summarized the equity of the company according to the 2004 balance sheet as \$2,000,000. But if you multiply the number of outstanding shares by the most recent stock price, you will find that the company's market value is over 10 times that amount. The point is that the numbers were supposed to help investors and other stakeholders decide to invest in the company's balance sheet and try to sell Jerry straight.

By the time you finish this chapter you should be able to respond appropriately to the questions posed in this case. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

1. Respond to Jerry's criticism that shareholders' equity does not represent the market value of the company. What information does the balance sheet provide? (page 103)
2. The usefulness of the balance sheet is enhanced by classifying assets and liabilities according to common characteristics. What are the classifications used in Electronic Arts' balance sheet and what elements do these categories include? (page 104)

| ELECTRONIC ARTS, INC.
Consolidated Balance Sheets
As of March 31
in thousands of dollars except share counts | | |
|---|--------------|--------------|
| | 2004 | 2003 |
| Assets | | |
| Current assets | | |
| Cash and cash equivalents | \$ 19,885 | \$ 91,995 |
| Accounts receivable | 264,116 | 81,621 |
| Marketable securities | 220 | 1 |
| Prepaid expenses and other assets | | |
| \$ 30,424, respectively | 21,916 | 32,083 |
| Inventory | 45,111 | 39,679 |
| Deferred income taxes | 34,111 | 17,600 |
| Other noncurrent assets | 3,800 | 37,466 |
| Goodwill | 2,910,807 | 911,111 |
| Property and equipment, net | 2,981,111 | 2,651,111 |
| Intangible assets | 4,111 | 21,111 |
| Other noncurrent assets | 91,111 | 16,111 |
| Other noncurrent assets | 18,468 | 17,301 |
| Other noncurrent assets | 40,111 | 11,111 |
| Other noncurrent assets | 16,111 | 41,111 |
| Total assets | \$ 3,000,111 | \$ 3,000,111 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | | |
| Accounts payable | \$ 1,111,111 | \$ 1,111,111 |
| Accrued liabilities | 800,111 | 460,111 |
| Deferred income taxes | 2,111,111 | 1,111,111 |
| Commitments and contingencies | | |
| Minority interests | | 1,111 |
| Shareholders' equity | | |
| Preferred stock, \$0.01 par value, 10,000 shares authorized | | |
| Common stock | | |
| Class A common stock, \$0.01 par value | | |
| 400,000,000 shares authorized, 301,302,456 and | | |
| 288,266,610 shares issued and outstanding, respectively | 3,013 | 2,883 |
| Class B common stock, \$0.01 par value | | |
| 100,000,000 shares authorized, 200,100 and 225,100 | | |
| shares issued and outstanding, respectively | 2 | 1 |
| Paid-in capital | 1,153,680 | 856,428 |
| Retained earnings | 1,111,111 | 923,892 |
| Accumulated other comprehensive income | 20,111 | 534 |
| Total shareholders' equity | 2,678,358 | 1,784,739 |
| Total liabilities and shareholders' equity | \$ 3,000,111 | \$ 3,000,111 |

The balance sheet, along with accompanying disclosures, provides a wealth of information to external decision makers. The information provided is useful not only in the prediction of future cash flows but also in the relative assessments of liquidity and long-term solvency.

This chapter begins our discussion of the financial statements by providing an overview of the balance sheet and the financial disclosures that accompany the financial statements. The first part of the chapter describes the usefulness and limitations of the balance sheet and illustrates the content of the statement. The second part discusses financial statement disclosures presented to external users in addition to the basic financial statements. In the third part we discuss how this information can be used by decision makers to assess business risk. That

disclosure introduces some common financial ratios used to denote liquidity and long-term solvency.

Chapter 4 continues this discussion of the financial statements with a coverage of the income statement and the statement of cash flows.

THE BALANCE SHEET

PART A

The purpose of the **balance sheet** is to report a company's financial position on a particular date. Unlike the income statement, which is a change statement reporting events that occurred during a period of time, the balance sheet presents an organized array of assets, liabilities, and shareholders' equity at a point in time. It is a freeze frame or snapshot of financial position at the end of a particular day marking the end of an accounting period.

Usefulness and Limitations

Carter Hawley Hale Stores (CHHS), Inc., was one of the largest department store retailers in the United States. In 1991 the company operated over 100 stores in the sunbelt regions of the country. The company's divisions included

LO1

The Broadway and Emporium. During the 1980s, the company struggled financially and in February of '99, declared bankruptcy. CHHS's February 2, 1991, quarterly balance sheet, filed with the SEC and made publicly available, disclosed the information in Graphic 3-1.

The negative shareholders' equity includes negative retained earnings of nearly \$1 billion resulting from operating losses incurred over a number of years.

By the summer of 1991, the company's stock price had dropped to \$1 per share from a 1989 high of \$8. In June 1991, the following (condensed) balance sheet information was reported in the bankruptcy court:

| | (\$ in 000s) |
|-------------------------------|--------------|
| Property | \$1,598,312 |
| Debt | 1,112,089 |
| Excess of property over debts | \$ 483,323 |

GRAPHIC 3-1 Quarterly Balance Sheet—Carter Hawley Hale Stores, Inc.

| Balance Sheet (condensed) | |
|-------------------------------|-------------|
| At February 2, 1991 | |
| (\$ in 000s) | |
| Assets | |
| Property and equipment, net | \$1,598,312 |
| Other assets | 5,062 |
| Liabilities | |
| Debt | 1,112,089 |
| Shareholders' Equity | |
| Common stock | 2,300 |
| Retained earnings | (1,016,987) |
| Shareholders' Equity | (794,687) |
| Excess of property over debts | \$ 483,323 |

Has the financial position changed this dramatically from February to June? No. Differences in reporting requirements by the SEC and the bankruptcy court cause the apparent discrepancy. First, the property assets disclosed to the bankruptcy court does not include accounts receivable and debts do not include the related liabilities for which the receivables had been pledged as collateral. This accounts for the smaller asset and debt figures as compared to those disclosed in the February statement provided to the SEC.

But the striking difference is that the negative equity of \$794,687 disclosed in the SEC report becomes a positive equity (excess of assets over liabilities) of \$483,323,000 in the information disclosed to the bankruptcy court. This positive equity, divided by the number of common shares outstanding, results in a per share value of nearly \$16. Why the discrepancy? The answer relates to the valuation of property. In the balance sheet submitted to the SEC, these assets are valued based on their original cost. However, the bankruptcy court requires assets to be reported at market value. The market value of CHHS's property, which

FINANCIAL READING CASE

Case 10

LO2
LO3
LO4

Assets minus liabilities, measured according to GAAP, is not likely to be representative of a market value of an entity.

includes some valuable land in locations like San Francisco, was significantly higher than its original cost.

This example illustrates an important limitation of the balance sheet. *The balance sheet does not portray the market value of the entity as a going concern, nor, as in the CHS example, its liquidation value.* Many assets, like land and buildings for example, are measured at their historical costs rather than their market values. Relatedly, many company resources recorded as assets at all. Also, many items and amounts reported on the balance sheet are heavily reliant on estimates rather than determinable amounts. For example, companies estimate the amount of receivables they will be able to actually collect, and the amount of warranty costs they will eventually incur for products already sold. For these and other reasons, a company's book value, its assets minus its liabilities as shown in the balance sheet, usually will not directly measure the company's market value.

Consider for example that near the end of 2004, the 30 companies constituting the Dow Jones Industrial Average had an average ratio of market value to book value of approximately 3.45. The ratio for Johnson & Johnson, one of the world's largest companies in the health care business, was approximately 6.0. Can you think of an important reason why Johnson & Johnson's market value would be six times higher than its book value? One reason is that Johnson & Johnson spends significant amounts, over \$5.2 billion in 2004 alone, on research and development of new products. Many of the drugs, for example, that the company has developed have been successful, and yet the costs to discover and develop them are not represented in the balance sheet. Research and development costs are expensed in the period incurred, and not capitalized as an asset.

Despite these limitations, the balance sheet does have significant value. An important feature of the statement is that it describes many of the resources a company has available for generating future cash flows. Another way the statement's content is informative is in combination with income statement items. For example, the relation between net income and assets provides a measure of return that is useful in predicting future profitability. In fact, many of the amounts reported in either of the two statements are more informative when viewed relative to an amount from the other statement.

The balance sheet does not simply list assets and liabilities; instead, assets and liabilities are classified (grouped) according to common characteristics. These classifications, which we explore in the next section, along with related disclosure notes, help the balance sheet to provide additional important information about liquidity and long-term solvency. Liquidity refers to the period of time before an asset is converted to cash or until a liability is paid. This information is useful in assessing a company's ability to pay its *current* obligations. Long-term solvency refers to the riskiness of a company with regard to the amount of liabilities in its capital structure. Other things being equal, the risk to an investor or creditor increases as the percentage of liabilities, relative to equity, increases.

Solvency also provides information about *financial flexibility*—the ability of a company to alter cash flows in order to take advantage of unexpected investment opportunities and needs. For example, the higher the percentage of a company's liabilities to its equity, the more difficult it typically will be to borrow additional funds or else to take advantage of a promising investment opportunity or to meet obligations. In general, the lower the financial flexibility, the higher the risk is that the enterprise will fail. In a subsequent section of this chapter, we introduce some common ratios used to assess liquidity and long-term solvency.

In summary, even though the balance sheet does not *directly measure* the market value of the entity, it provides valuable information that can be used to help judge market value.

Classifications

The balance sheet is broken down into sections, assets and liabilities, and is classified according to common characteristics. *The primary distinction made in the balance sheet is the current versus noncurrent classification of both assets and liabilities.* The remainder of Part

*We explore some of these relationships in Chapter 4.

FINANCIAL
REPORTING CASE

Q2 p. 107



A provided an overview of the balance sheet. We discussed each of the three primary elements of the balance sheet: assets, liabilities, and shareholders' equity. In the order they are reported in the statement as well as the classifications typically made within the categories. The balance sheet elements were defined in Chapter 1 as follows:

Assets are probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events.

Liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events.

Equity (or net assets), called shareholders' equity or stockholders' equity for a corporation, is the residual interest in the assets of an entity that remains after deducting liabilities.

Graphic 3-2 lists the balance sheet elements along with their sub-components.

We intentionally avoid repeated discussions of the question of valuation in order to focus on an overview of the balance sheet. In later chapters we look closer at the nature and valuation of the specific assets and liabilities.

ASSETS

Current Assets. Current assets include cash and other assets that are reasonably expected to be converted to cash or consumed within the coming year, or within the normal operating cycle. The purpose of this longer than one-year, the operating cycle of a typical manufacturing company refers to the period time necessary to convert cash into raw materials, into work in process, into finished products, the finished goods to be sold, and finally to cash. This concept is illustrated in Graphic 3-3. For some businesses, such as shipping or distribution, the operating cycle extends far beyond one year. For example, takes two years to build a carrying supertanker. Until the shipbuilding is almost complete, raw materials cannot be converted to cash or consumed within two years. But for most businesses the operating cycle will be shorter than one year. In these situations the one-year convention is used to classify both assets and liabilities. Where a company has no clearly defined operating cycle, the one-year convention is used.

Graphic 3-4 presents the current asset sections of FedEx Corporation's 2004 and 2003 balance sheets that also appear in Appendix A located at the back of the text. In keeping with common practice, the individual current assets are listed in the order of their liquidity (nearness to cash).

Cash and cash equivalents. The most liquid asset, cash, is listed first. Cash includes cash on hand and in banks that is available for use in the operations of the business and such items as bank drafts, cashier's checks, and money orders. Cash equivalents frequently include certain negotiable items such as commercial paper, money market funds, and U.S. treasury bills. These are highly liquid investments that can be quickly converted into cash. Most companies draw a distinction between investments classified as cash equivalents and the next category of current assets: short-term investments, according to the scheduled maturity of the investment. It is common practice to classify investments that have a maturity date of three months or less from the date of purchase

The balance sheet is a statement of financial position that shows the assets, liabilities, and equity of a company at a specific point in time.

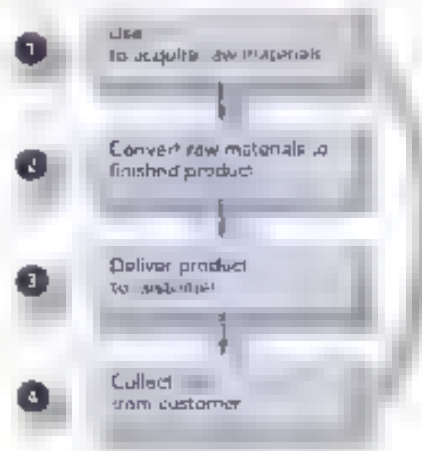
GRAPHIC 3-2 Classification of Elements within a Balance Sheet

Assets
 Current assets
 Investments and cash
 Property, plant, and equipment
 Intangible assets
 Other assets
Liabilities
 Current liabilities
 Long-term liabilities
Shareholders' Equity
 Paid-in capital
 Retained earnings

LO2

Graphic 3-3 illustrates the operating cycle of a typical manufacturing company. The cycle starts with the acquisition of raw materials, followed by conversion into finished products, delivery to customers, and finally collection of cash from the customer.

GRAPHIC 3-3 Operating Cycle of a Typical Manufacturing Company



GRAPHIC 3-4

Current Assets—FedEx Corporation

FedEx Corporation

| | May 31 | |
|-----------------------------------|--------------|--------------|
| | 2004 | 2003 |
| Assets | | |
| Cash and cash equivalents | \$ 546 | \$ 538 |
| Accounts receivable | 14 | 164 |
| Prepaid expenses and other assets | 209 | 228 |
| Investments and funds | 369 | 416 |
| Other assets | 159 | 2 |
| Total current assets | 4,970 | 1,944 |

■ 103

to cash equivalents. FedEx Corporation's policy follows this practice and is disclosed in the summary of significant accounting policies disclosure note. The portion of the note from the company's 2004 financial statements is shown in Graphic 3-5.

GRAPHIC 3-5

Disclosure of Cash Equivalents—FedEx Corporation

FedEx Corporation

Summary of Significant Accounting Policies (in part)

Cash Equivalents. Cash equivalents include current operating requirements and investments in short-term interest-bearing instruments with maturities shorter than 90 days at the date of purchase and are stated at cost, which approximates market value.

Cash that is restricted for a special purpose and not available for current operations should not be classified as a current asset. For example, if cash is being accumulated to repay a debt due in five years, the cash is classified as investments and funds, a noncurrent asset.¹

Short-term investments. Liquid investments not classified as cash equivalents are reported as either short-term investments, sometimes called *temporary investments* or *short-term marketable securities*, or investments and funds, a noncurrent asset. Investments in stock and debt securities of other corporations are included as short-term investments if the company has the ability and intent to sell those securities within the next 12 months or operating cycle, whichever is longer. If, for example, a company owns 1,000 shares of IBM Corporation stock and intends to hold those shares for several years, the stock is a long-term investment and should be classified as investments and funds.

For reporting purposes, investments in debt and equity securities are classified in one of three categories: (1) held to maturity, (2) trading securities, or (3) securities available for sale. We discuss these different categories and their accounting treatment in Chapter 12.

FedEx Corporation

Accounts receivable. Accounts receivable result from the sale of goods or services on credit. Notice in Graphic 3-4 that the FedEx receivables are valued less allowance, that is, net of the amount not expected to be collected. Accounts receivable often are referred to as *trade receivables* because they arise in the course of a company's normal trade. *Nontrade receivables* result from loans or advances by the company to other entities. When receivables are supported by a formal agreement or note that specifies payment terms they are called *notes receivable*.

Accounts receivable usually are due in 10 to 60 days, depending on the terms offered to customers and are, therefore, classified as current assets. Any receivable, regardless of the source, not expected to be collected within one year or the operating cycle, whichever is longer, is classified as investments and funds, a noncurrent asset.

¹ If the debt is due in the next year and classified as a current liability, then the cash also would be classified as current.

Inventories. Inventories include goods awaiting sale (finished goods), goods in the course of production (work in process), and goods to be consumed directly or indirectly in production (raw materials). Inventory for a wholesale or retail company consists only of finished goods, but the inventory of a manufacturer will include all three types of goods. Occasionally, a manufacturing company will report all three types of inventory directly in the balance sheet. More often, only the total amount of inventories is shown in the balance sheet and the balances of each type are shown in a disclosure note. For example, the data shown in Graphic 3-4 appears in the 2004 financial statements of **IBM Corporation**.

| | 2004 | 2003 |
|-----------------|----------|----------|
| Inventory | \$ 1,400 | \$ 1,400 |
| Raw materials | \$ 1,000 | \$ 1,000 |
| Work in process | \$ 200 | \$ 200 |
| Finished goods | \$ 200 | \$ 200 |

GRAPHIC 3-4
Inventories
Disclosure—IBM
Corporation

Inventories are reported as current assets because they normally are sold within the operating cycle.

FedEx Corporation earns revenue by providing services to its customers rather than by selling goods. That is why there are no merchandise inventories listed in the company's balance sheet. Instead, the company shows an inventory of "spare parts, supplies and fuel." These assets will be used during the coming year in the process of earning service revenue.

FedEx Corporation

Prepaid expenses. Recall from Chapter 2 that a prepaid expense represents an asset recorded when an expense is paid in advance, entailing benefits beyond the current period. Examples are prepaid rent and prepaid insurance. Even though these assets are not converted to cash, they would involve an outlay of cash if not prepaid.

Whether a prepaid expense is current or noncurrent depends on when its benefits will be realized. For example, if rent on an office building were prepaid for one year, then the entire prepayment is classified as a current asset. However, if rent were prepaid for a period extending beyond the coming year, a portion of the prepayment is classified as an other asset, a noncurrent asset.² FedEx Corporation combines prepaid expenses with other current assets in its balance sheet. Presumably, the "other" current asset category includes assets—such as short-term investments and nontrade receivables—that, because their amounts are not material, did not warrant separate disclosure.

FedEx Corporation

FedEx lists the other current assets in its balance sheet, "Licenses, income taxes." This item is discussed in Chapter 6.

When assets are expected to provide economic benefits beyond the next year or operating cycle, they are reported as **noncurrent assets**. Typical classifications of noncurrent assets are (1) investments and funds, (2) property, plant, and equipment, and (3) intangible assets.

Investments and Funds. Most companies occasionally acquire assets that are not used directly in the operations of the business. These "nonoperating" assets include investments in equity and debt securities of other corporations, now held for speculation, noncurrent receivables, and cash set aside for special purposes (such as for future plant expansion). These assets are classified as noncurrent because management does not intend to convert the assets into cash in the next year or the operating cycle if that is longer.

IBM Corporation Balance Sheet (Partial)

FedEx Corporation Balance Sheet (Partial)

² Examples often include prepayables for benefits extending beyond one year as current assets which the amounts are material.

equipment along with intangible assets generally are referred to as **operational assets**. They often are the primary revenue-generating assets of the business.

Property, plant, and equipment (metal road, buildings, equipment, machinery, and furniture) as well as natural resources, such as oil and gas mines, oil fields, and oil wells. These **physical assets** also are reported on a single statement, the **balance sheet**, which displays information about how well property, plant, and equipment less accumulated depreciation (or depletion) is doing. **Goodwill** and **intangible assets** a company will present only the net amount of a quarry, plant, and equipment on the balance sheet and provide details in a disclosure note. **Goodwill** is not a separate asset but a classification because it has an intangible useful life and thus is not depreciated.

Intangible Assets. Some assets used in the operations of a business have no physical substance. These are appropriately called **intangible assets**. Generally, these represent the ownership of an intangible right in something such as a product, a process, or a name. This right can be a valuable resource in generating future revenues. Patents, copyrights, and franchises are examples. They are reported on the balance sheet net of accumulated amortization. Some companies include intangible assets as part of property, plant, and equipment, while others report these items in a separate intangible asset classification or as other noncurrent assets.

Quite often, much of the value of intangibles is not reported in the balance sheet. For example, it would not be unusual for the historical cost of a patent to be significantly lower than its market value. As we discuss in Chapter 10, for internally developed intangibles, the costs that are included as part of historical cost are limited. Specifically, none of the research and development costs incurred in developing the intangible are included in cost.

Other Assets. Balance sheet classification is a catch-all classification of noncurrent assets called **other assets**. This classification includes long-term prepaid expenses called **deferred charges** and any noncurrent asset not falling in one of the other classifications. For example, a company's long-term investments in other material in equities may be reported in the other assets classification rather than as a separate investments and funds category.

Graphic 3-7 reproduces the noncurrent asset section of FedEx Corporation's 2003 balance sheet. For educational purposes, noncurrent assets are reported as other assets. This includes the intangible asset goodwill and pension assets, and intangible and other noncurrent assets.

GRAPHIC 3-7
Property, Plant, and
Equipment and Other
Assets: FedEx
Corporation
FedEx Corporation

| | May 31 | |
|--|--------|--------|
| | 2004 | 2003 |
| Assets | | |
| Property and equipment, net: | | |
| Aircraft and related equipment | 7,701 | 6,624 |
| Package handling and ground support equipment and vehicles | 3,256 | 5,011 |
| Computers and communications equipment | 3,857 | 3,416 |
| Other | 4,317 | 4,208 |
| | 19,131 | 19,259 |
| Less accumulated depreciation and amortization | 174 | 313 |
| Net property and equipment | 18,957 | 18,946 |
| Other noncurrent assets: | | |
| Goodwill | 1,801 | 0 |
| Pension assets, net | 11 | 267 |
| Intangible and other assets | 95 | 41 |
| Other noncurrent assets | 5,27 | 1,4 |

We've seen how assets are grouped into current and noncurrent categories and that noncurrent assets always are subclassified further. Let's now turn our attention to liabilities. These too are separated into current and noncurrent (long-term) categories.

LIABILITIES

Liabilities represent obligations to other parties. The informational value of reporting these amounts is enhanced by classifying them as current or long-term liabilities. Graphic 3-2 shows the liability section of FedEx Corporation's 2004 and 2003 balance sheets.

| May 31 | | |
|--|--------------|--------------|
| | 2004 | 2003 |
| Liabilities | | |
| Current liabilities | | |
| Line portion of long-term debt | \$ 750 | \$ 900 |
| Accounts payable and accrued liabilities | 100 | 200 |
| Deferred liabilities | 1,000 | 1,100 |
| Accrued expenses | 100 | 100 |
| Short-term liabilities | 4,000 | 3,000 |
| Long-term debt, net of unamortized | 1,000 | 200 |
| Long-term liabilities | | |
| Long-term debt, net of unamortized | 0 | 100 |
| Long-term debt, net of unamortized | 700 | 200 |
| Long-term debt, net of unamortized | 5 | 500 |
| Long-term debt, net of unamortized | 500 | 400 |
| Long-term debt, net of unamortized | 400 | 400 |
| Long-term debt, net of unamortized | 5 | 5 |
| Total (the long-term liabilities) | 3,250 | 3,000 |

GRAPHIC 3-2

Liabilities—FedEx Corporation

FedEx Corporation

Current Liabilities. Current liabilities are those obligations that are expected to be satisfied through the use of current assets or the creation of other current liabilities. So, this classification includes all liabilities that are expected to be satisfied within one year or the operating cycle, whichever is longer. An exception is a liability that management intends to refinance on a long-term basis. For example, if management intends to refinance a six-month note payable by substituting a two-year note payable and has the ability to do so, then the liability would not be classified as current even though it's due within the coming year. This exception is discussed in more detail in Chapter 13.

The most common current liabilities are accounts payable, notes payable (short-term borrowings), accrued revenues, accrued liabilities, and the currently maturing portion of long-term debt. Accounts payable are obligations to suppliers of merchandise or of services purchased on open account with payment usually due in 10 to 60 days. Notes payable are written promises to pay cash at some future date (120 days). Unlike accounts payable, notes usually require the payment of explicit interest in addition to the original obligation amount. Notes maturing in the next year or operating cycle, whichever is longer, will be classified as current liabilities. Accrued revenues represent cash received from a customer for goods or services to be provided in a future period.

Accrued liabilities represent obligations created when expenses have been incurred but will not be paid until a subsequent reporting period. Examples are accrued salaries payable, accrued interest payable, and accrued taxes payable. FedEx Corporation reported accrued liabilities at the end of 2004 in two categories: (1) accrued salaries and benefits of \$1,000 million, and (2) accrued expenses of \$1,000 million. In the disclosure note, shown in Graphic 3-3, the company provided the details.

Long-term notes, loans, mortgages, and bonds payable usually are reclassified and reported as current liabilities as they become payable within the next year (or operating cycle

Liabilities are classified as current or long-term liabilities based on the expected date of payment.

Liabilities are classified as current or long-term liabilities based on the expected date of payment.

Graphic 3-9

Accounting Expenses
Disclosures—FedEx
Corporation

FedEx Corporation**Note 5: Selected Current Liabilities**

The components of selected current liabilities were as follows in thousands of dollars:

| | 2004 | 2003 |
|--|----------|---------|
| Accounts payable and employee benefits | | |
| Accounts payable | \$ 767 | \$ 119 |
| Employee benefits | 696 | 627 |
| Compensation and bonuses | 403 | 578 |
| | \$1,866 | \$1,324 |
| Accrued expenses | | |
| Deferred income accruals | \$ 442 | \$ 40 |
| Interest other than income tax | 791 | 779 |
| Other | 52 | 455 |
| | \$ 1,285 | \$1,274 |

Current liabilities
are those that are
due within one year
or the normal operating
cycle.

Long-term liabilities
are those that are
due after one year or
the normal operating
cycle.

Shareholders' equity
is the residual interest
in the assets of the
entity after deducting
all liabilities.

if that's longer.³ Likewise, when long-term debt is payable in installments, the installment payable currently is reported as a current liability. For example, a \$1,000,000 note payable requiring \$100,000 in principal payments each year for 10 years is reported as a current liability for the first installment of principal due and a long-term liability.

Chapter 13 provides a more detailed analysis of current liabilities.

Long-Term Liabilities. Long-term liabilities are obligations that will not be satisfied in the next year or operating cycle without cash outlay. They do not require the use of current assets in the current operating cycle for payment. Examples are long-term notes, bonds, pension obligations, and lease obligations.

But simply classifying a liability as long-term doesn't provide complete information to external users. For instance, long-term could mean anything from 2 to 20, 30, or 40 years. Payment terms, interest rates, and other details needed to assess the impact of these obligations on future cash flows and long-term solvency are reported in a disclosure note.

At the end of its 2004 fiscal year, FedEx Corporation reported long-term debt and other long-term liabilities. A disclosure note indicated that long-term debt consisted of notes and capital lease obligations. Other long-term liabilities included deferred income taxes, pension and other postretirement healthcare benefits, self-insurance accruals, deferred lease obligations, deferred gains, and other. These long-term liabilities are discussed in later chapters.

SHAREHOLDERS' EQUITY

Remember the discussion in Chapters 1 and 2 that owners' equity is simply a residual amount determined by subtracting liabilities from assets. For that reason, it is also sometimes called net assets. Also recall that owners of a corporation are its shareholders, so owners' equity for a corporation is referred to as shareholders' equity or stockholders' equity. Shareholders' equity for a corporation arises in two ways. First, we sometimes distinguish between amounts *invested* by shareholders in the corporation, and (2) amounts *earned* by the corporation (on behalf of its shareholders). These are reported as (1) paid-in capital and (2) retained earnings. Retained earnings represents the accumulated net income earned since the inception of the corporation and not yet paid to shareholders as dividends.

Graphic 3-10 presents the shareholders' equity section of FedEx Corporation's 2004 and 2003 balance sheets. The company calls this section common stockholders' investment

Investment can be with assets or the cash of other current liabilities.



PERSPECTIVE

Balance Sheet

There are significant differences from country to country in the accounting methods used to measure balance sheet items. These differences, of course, also affect income statement amounts. For example, differences in inventory measurement methods affect the calculation of cost of goods sold as well as the inventory balance reported in the balance sheet. Many of these measurement differences are highlighted in the specific chapters that deal with the specific issues.

In terms of balance sheet presentation, the classification of assets and liabilities into current and noncurrent categories is prevalent globally. However, significant differences do exist, particularly with respect to terminology. In the United Kingdom, the term *stocks* refers to inventory. A U.S. investor would interpret *stocks* to mean investments in equity securities of other companies. In the United States, shareholders' equity is composed of paid-in capital and retained earnings. In many other countries, shareholders' equity is divided into capital and reserves. For example, in Germany, equity is divided into share capital, capital reserves and reserve reserves. In India, liabilities whose existence is certain but whose value must be estimated, are called *provisions* and are listed separately.

Balance sheet presentation differences also exist. For example, a typical U.K. balance sheet begins with noncurrent assets, called *fixed assets*. Current assets are listed next and current liabilities are subtracted to arrive at net current assets, which is added to fixed assets. Long-term debt is then subtracted from this subtotal to arrive at net assets. The net assets total is equal to shareholders' interest, which is the last item reported in the balance sheet.

Billions of U.S. Dollars

| | May 31 | |
|---|--------|------|
| | 2004 | 2003 |
| Common Stockholders' Investment | | |
| Common stock, \$0.01 par value, 100 million shares authorized and 100 million shares issued and outstanding | 30 | 30 |
| Additional paid-in capital | 67 | 67 |
| Retained earnings | 30 | 30 |
| Accumulated other comprehensive income | 4 | 4 |
| Deferred compensation and treasury stock, at cost | 8 | 4 |
| Minority interest in subsidiaries | 60 | 7 |
| Total | 199 | 142 |

GRAPH 3-10
Shareholders' Equity—
FedEx Corporation
FedEx Corporation

From the inception of the corporation through May 31, 2004, FedEx has accumulated net income less dividends of \$7,001 million, which is reported as *retained earnings*. The company's *paid-in capital* is represented by common stock and additional paid-in capital which collectively represent cash received by shareholders in exchange for ownership interests. Information about the number of shares the company has authorized and how many shares have been issued also must be disclosed.

In addition to paid-in capital and retained earnings, shareholders' equity also include a few other equity components. For example, FedEx has accumulated other comprehensive income, deferred compensation, and treasury stock. Accumulated other comprehensive income is discussed in Chapters 4, 12, and 18. Other equity components are addressed in later chapters. Chapter 18 in particular. We also discuss the concept of *par value* in Chapter 18.

- CONCEPT REVIEW EXERCISE

BALANCE SHEET CLASSIFICATION

The following is a post-closing balance sheet for the Sepia Paint Corporation at December 31, 2006, the end of the company's fiscal year.

| Account Title | Debits | Credits |
|--|------------------|------------------|
| Cash | 80,000 | |
| Accounts receivable | 200,000 | |
| Allowance for uncollectible accounts | | 20,000 |
| Inventories | 300,000 | |
| Prepaid expenses | 30,000 | |
| Note receivable (due in one month) | 60,000 | |
| Investments | 50,000 | |
| Land | 120,000 | |
| Buildings | 550,000 | |
| Machinery | 500,000 | |
| Accumulated depreciation—buildings and machinery | | 450,000 |
| Patent (net of amortization) | 50,000 | |
| Accounts payable | | 170,000 |
| Salaries payable | | 40,000 |
| Interest payable | | 10,000 |
| Note payable | | 100,000 |
| Bonds payable (due in 10 years) | | 500,000 |
| Common stock, no par | | 400,000 |
| Retained earnings | | 250,000 |
| Totals | <u>1,940,000</u> | <u>1,940,000</u> |

The \$50,000 balance in the investments account consists of marketable equity securities of other corporations. The company's intention is to hold the securities for at least three years. The \$100,000 note payable is an installment note for \$10,000 of the principal plus interest payments each July for the next 10 years. At the end of the year, 100,000 shares of common stock were issued and outstanding. The company has 500,000 shares of common stock authorized.

Required

Prepare a classified balance sheet for the Sepia Paint Corporation at December 31, 2006.

SOLUTION

SEPIA PAINT CORPORATION

Balance Sheet

At December 31, 2006

| Assets | | |
|--|------------|----------------|
| Current assets. | | |
| Cash | | \$ 80,000 |
| Accounts receivable | \$ 200,000 | |
| Less: Allowance for uncollectible accounts | (20,000) | 180,000 |
| Note receivable | | 60,000 |
| Inventories | | 300,000 |
| Prepaid expenses | | 30,000 |
| Total current assets | | 650,000 |
| Investments | | 50,000 |
| Property, plant, and equipment: | | |
| Land | 120,000 | |
| Buildings | 550,000 | |
| Machinery | 500,000 | |
| | 1,170,000 | |
| Less: Accumulated depreciation | | (450,000) |

| | |
|--|--------------------|
| Net property, plant, and equipment | 720,000 |
| Intangible: | |
| Patent | 50,000 |
| Total assets | \$1,470,000 |
| Liabilities and Shareholders' Equity | |
| Current liabilities: | |
| Accounts payable | \$ 170,000 |
| Salaries payable | 40,000 |
| Interest payable | 10,000 |
| Current maturities of long-term debt | 10,000 |
| Total current liabilities | 230,000 |
| Long-term liabilities: | |
| Note payable | \$ 90,000 |
| Bonds payable | 500,000 |
| Total long-term liabilities | 590,000 |
| Shareholders' equity: | |
| Common stock, no par 500,000 shares authorized,
100,000 shares issued and outstanding | 400,000 |
| Retained earnings | 250,000 |
| Total shareholders' equity | 650,000 |
| Total liabilities and shareholders' equity | \$1,470,000 |

The usefulness of the balance sheet, as well as the other financial statements, is significantly enhanced by financial statement disclosures. We now turn our attention to these disclosures.

FINANCIAL DISCLOSURES

PART 8

Financial statements are included in the annual report a company mails to its shareholders. They are, though, only part of the information provided. Critical to understanding the financial statements and to evaluating the firm's performance and financial health are disclosure notes and other information included in the annual report.

Disclosure Notes

Disclosure notes typically span several pages and explain or elaborate on the data presented in the financial statements themselves. Throughout this text you will encounter examples of items that usually are disclosed this way. For instance, information providing details of pension plans, leases, debt, and several assets is disclosed in the notes. Disclosures must include certain specific notes such as a summary of significant accounting policies, descriptions of subsequent events, and related-party transactions, but many notes are fashioned to suit the disclosure needs of the particular reporting enterprise. Actually, any explanation that contributes to investors' and creditors' understanding of the results of operations, financial position, or cash flows of the company should be included. Some common disclosures are made by some companies in the form of notes, while other companies disclose the same information as separate schedules or in other formats with in the annual report. The specific format of disclosure is not important, only that the information is, in fact, disclosed. Let's take a look at just a few disclosure areas.

SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

There are many areas where management chooses from among equally acceptable alternative accounting methods. For example, management chooses whether to use accelerated or straight-line depreciation, whether to use FIFO, LIFO, or average cost to measure inventories, and whether the completed contract or percentage-of-completion method best reflects

LO3

the full disclosure principle requires that financial statements provide relevant information concerning the reporting entity.

The selection of significant accounting policies affects the results of operations, financial position, and cash flows of the reporting entity.

the performance of construction operations. It also defines which securities it considers to be cash equivalents and its policies regarding the timing of recognizing revenues. Typically, the first disclosure note consists of a summary of significant accounting policies that discloses the choices the company makes.⁶ Graphic 3-11 shows you a portion of a typical summary note from a recent annual report of the Starbucks Corporation. FedEx Corporation reports the summary in its Note 4 located in Appendix B located at the back of this text.

FedEx Corporation

GRAPHIC 3-11 Summary of Significant Accounting Policies—Starbucks Corporation

Note 1 Summary of Accounting Policies (in part)

Principles of Consolidation
The consolidated financial statements reflect the financial position and operating results of Starbucks, which includes all wholly owned subsidiaries.

Cash Equivalents
Cash equivalents consist of highly liquid investments with a maturity of three months or less at the time of purchase and are reported at cost.

Inventories
Inventory is valued at the lower of cost or market. Cost is determined by the first-in, first-out method. Inventory includes coffee beans, coffee, syrups, and other ingredients.

Property, Plant, and Equipment
Property, plant, and equipment are stated at cost less accumulated depreciation and amortization. Depreciation is computed using the straight-line method over the estimated useful life of the asset. Land is not depreciated. Amortization is computed using the straight-line method over the estimated useful life of the intangible asset.

Revenue Recognition
Revenue is recognized when the performance obligation is satisfied, which is when the product is delivered to the customer. Revenue is recognized net of discounts and allowances. Revenue is recognized when the product is delivered to the customer, regardless of when payment is received.

Studying this note is an essential step in analyzing financial statements. Obviously, knowing which methods were used to derive certain accounting numbers is critical to assessing the adequacy of those numbers.

SUBSEQUENT EVENTS

When an event that has a material effect on the company's financial position occurs after the fiscal year-end but before the financial statements actually are issued, the event is disclosed in a subsequent event disclosure note. Examples include the issuance of debt or equity securities, a business combination or the sale of a business, the sale of assets, an event that sheds light on the outcome of a loss contingency, or any other event having a material effect on operations. Graphic 3-12 illustrates the required disclosure by showing a note that Costco Wholesale Corporation included in its August 29, 2004, financial statements, announcing property damage and business interruption caused by hurricanes in Florida.

A subsequent event is a significant event or transaction that occurs after the fiscal year-end but before the financial statements are issued.

GRAPHIC 3-12
Subsequent Event
Costco Wholesale
Corporation

Note 11 Subsequent Event
Subsequent to year-end, the Company learned that a significant business interruption occurred in Florida, resulting in the closure of several of its distribution centers. The Company is currently assessing the impact of this event on its operations and is working to minimize the impact. The Company expects to resume operations in the range of \$1 million to \$2 million per day.

We cover subsequent events in more depth in Chapter 13.

⁶ "Statement of Accounting Policies," *Accounting Principles Board Opinion No. 22* (New York: AICPA, 1972).

Disclosure notes for public financial statement elements are required. Others are required when they are not fully disclosed.

As you might expect, any disclosures of related-party transactions, irregularities, and illegal acts can be quite sensitive. Although auditors must be cognizant of the privacy of the parties involved, that consideration cannot be subordinate to users' needs for full disclosure.

We've discussed only a few of the disclosure items most frequently included in annual reports. Other common disclosures include details of income tax accruals, per-share calculations, income taxes, property and equipment, contingencies, long-term debt, leases, pensions, stock options, changes in accounting methods, fair values of financial instruments, and exposure to market risk and credit risk. We discuss and illustrate these in later chapters in the context of related financial statement elements.

Management Discussion and Analysis

Each annual report includes a fairly lengthy discussion and analysis provided by the company's management. In this section, management provides its views on significant events, trends, and uncertainties pertaining to the company's (a) operations, (b) liquidity, and (c) capital resources. Although the management discussion and analysis (MDA) section may embody management's biased perspective, it can offer an informed insight that might not be available elsewhere. Graphic 3-14 contains part of the liquidity and capital resources portion of The Walt Disney Company's MDA that followed a discussion of operations in 2003 annual report.

GRAPHIC 3-14
Management Discussion and Analysis—Walt Disney Company

| Management Discussion and Analysis of Financial Condition and Results of Operations | |
|--|--|
| Liquidity and Capital Resources | |
| <p>Capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company. The Company's capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company.</p> <p>The Company's capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company.</p> <p>The Company's capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company.</p> | <p>During the year ended September 30, 2003, the Company's capital expenditures were approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company.</p> <p>The Company's capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company.</p> <p>The Company's capital expenditures for the last three years have been approximately \$1.2 billion, or about 10% of the total assets of the Company. This is primarily due to the significant increase in the number of assets owned by the Company.</p> |

Management's Responsibilities

As described in the previous section, the internal control system is designed to support the content of those statements. Their role is to attest to the fairness of the financial statements based on historical information. However, management prepares and is responsible for the financial statements and other information in the annual report. To enhance the awareness of the users of financial statements concerning the relative roles of management and the auditor, annual reports include a management's responsibility section that explains the

responsibility of management for the information contained in the annual report as well as all other information of the company's interests. See also page 10.

[illegible]

Statement of Responsibility (in detail)

On the other hand, the fact that the company has a long history of success in the market is a positive sign. The company's financial performance has been strong, and its management team is experienced and capable. The company's products are of high quality and are well-received by customers. The company's marketing strategy is effective, and it has a strong brand identity. The company's overall performance is excellent, and it is a leader in its industry.

[illegible]

| | |
|---------------------------------|--|
| Chapman | Hempel & Pendergast |
| P.O. Box 1000, New Haven, Conn. | Southern Pine Products Co., Dept. B, One Pine Street |

GRAPHIC 3-15

Management &
Responsibilities—Eaton
Systems, Inc.

1. 在 100 个球中，有 10 个红球，90 个白球。
 2. 从 100 个球中，随机抽取 10 个球。
 3. 计算抽到红球的个数。
 4. 重复上述过程 1000 次。
 5. 计算抽到红球的平均个数。

Auditors' Report

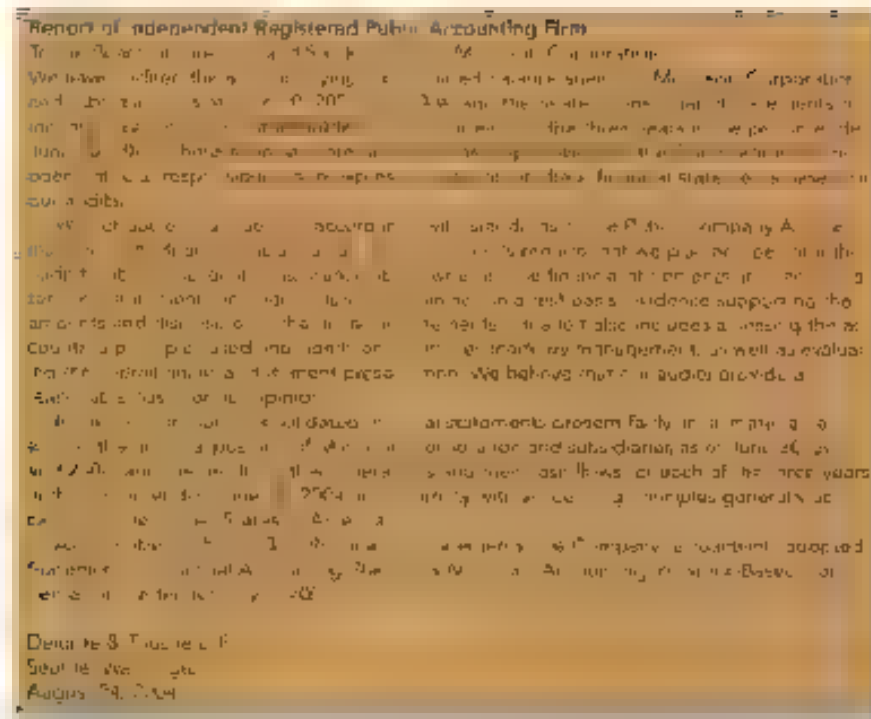
One step in financial analysis should be an examination of the auditor's report. This is the report issued by the CPAs who audit the financial statements that informs users of the audit findings. Every audit report is similar to the one prepared by Deloitte & Touche LLP for the financial statements of Microsoft Corporation, as shown in Graphic 3-16.

The reason for the similarities is that auditors' reports must be in exact compliance with the specifications of the AICPA and the PCAOB.¹⁸ In most cases, including the report for

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[illegible]

Graphic 3-16
Auditor's Report—
Microsoft Corporation



The auditor expresses an opinion on the financial statements with a modification only if the financial statements do not conform with the generally accepted accounting principles.

The auditor must call attention to problems that might exist in the financial statements.

Minor modifications will be considered in the financial statements presented for the company's financial results. Modifications of accounting principles are not acceptable. The auditor must call attention to the financial statements if the financial statements do not conform with the generally accepted accounting principles. The auditor must call attention to the financial statements if the financial statements do not conform with the generally accepted accounting principles. The auditor must call attention to the financial statements if the financial statements do not conform with the generally accepted accounting principles.

- **Lack of consistency** due to a change in accounting principle such that comparability is affected even though the auditor concurs with the desirability of the change
- **Uncertainty** as to the ultimate resolution of a contingency for which a loss is material in amount but not necessarily probable or probable but not estimable
- **Emphasis of a matter** concerning the financial statements that does not affect the existence of an unqualified opinion but relates to a significant event such as a related-party transaction

Since an **adverse opinion** results in the auditor expressing other than an unqualified opinion, in which case the auditor will issue a **qualified opinion**.

- **Qualified opinion** This contains an exception to the standard unqualified opinion but not a sufficient exception to issue an adverse opinion. The auditor will issue a qualified opinion if the financial statements do not conform with the generally accepted accounting principles (a) inadequate disclosure, and (c) a limitation or restriction of the scope of the examination
- **Adverse opinion** This is necessary when the exceptions are so serious that a qualified opinion is not justified. Adverse opinions are rare because auditors usually are able to persuade management to rectify problems to avoid this undesirable report
- **Disclaimer** An auditor will disclaim an opinion if insufficient information has been gathered to express an opinion.



[illegible]

Disclosure Practices around the World

Most countries require specific disclosures by companies operating within their borders. Many of these disclosures are similar. However, the amount and types of required and voluntary disclosures differ from country to country. For example, in Israel, companies whose securities are publicly traded are required to disclose any receivable that exceeds 5 percent of total current assets. In Mexico, a disclosure reports the separate identification of long-term liabilities into the following categories: suppliers, affiliates, income tax, employee profit sharing, and bank loans.

Several supplemental disclosures are uniquely European. These include information about shares and shareholders, certain employee disclosures, and environmental disclosures. An example of an environmental disclosure would be a discussion of safety measures adopted by the company in their manufacturing plants. In France, many enterprises are required to publish an annual social balance sheet. This report covers matters such as employment, training, health and safety conditions, employee benefits, and environmental issues. In general, European companies consider the full-disclosure concept to include a much broader set of information than do U.S. companies.

Using Financial Statement Information

- **LO1** The overriding objective of financial reporting is providing information that investors and creditors can use to make decisions. Nevertheless, it is sometimes easy to lose sight of that objective while dealing with the intricacies that specific concepts and procedures can involve. In this part of the chapter we provide an overview of financial statement analysis and then demonstrate the use of ratios, a popular financial statement analysis technique, to analyze risk.

Investors, creditors, and others use information that companies provide in corporate financial reports to make decisions. Although the financial reports focus primarily on the past performance and the present financial condition of the reporting company, information users are most interested in the outlook for the future. Trying to gain a glimpse of the future from past and present data entails using various tools and techniques to formulate predictions. This is the goal of financial statement analysis.

Financial statements are not presented in isolation. Every financial statement issued is accompanied by the corresponding financial statement of the preceding year, and often the previous two years. These are called **comparative financial statements**. They enable investors, creditors, and other users to compare year-to-year financial position, results of operations, and cash flows. These comparisons can help an analyst detect and predict trends. Because

operations often expand and contract in a cyclical fashion. Analysis of only one year's data may not provide an accurate picture of a company.

Some analysts enhance their comparison by expressing each item as a percentage of that same item in the financial statements of another year (base amount) in order to more easily see year-to-year changes. This is referred to as horizontal analysis. Similarly, vertical analysis involves expressing each item in the financial statements as a percentage of an appropriate corresponding total, or base amount, but within the same year. For example, cash, inventory, and other assets can be revealed as a percentage of total assets, net income and each expense can be revealed as a percentage of revenues.

Regardless of the specific technique used, the essential point is that accounting numbers are virtually meaningless in isolation. Their value derives from comparison with other numbers. The most common way of comparing accounting numbers to evaluate the performance and risk of a firm is ratio analysis.

We see ratios every day. Batting averages indicate how well our favorite baseball players are performing. We evaluate basketball players by field goal percentage and rebounds per game. Speedometers measure the speed of our cars in terms of miles per hour. We compare grocery costs on the basis of price per pound or ounce. In each of these cases, the ratio is more meaningful than a single number by itself. Do 45 hits indicate satisfactory performance? It depends on the number of at-bats. Is \$2 a good price for cheese? It depends on how many ounces the \$2 buys. Ratios make these measurements meaningful.

Likewise, we can use ratios to help evaluate a firm's performance and financial position. Is net income of \$4 million a cause for shareholders to celebrate? Probably not if shareholders' equity is \$10 billion. But if shareholders' equity is \$10 million, that's a 40% return on equity! Although ratios provide some meaningful information about absolute numbers alone, the ratios are most useful when analyzed relative to some standard of comparison. That standard of comparison may be previous performance of the same company, the performance of a competitor company, or an industry average for the particular ratio.

Accountants should be conversant with ratio analysis for at least three reasons. First, when preparing financial statements, accountants should be familiar with the ways users will use the information provided to make better decisions concerning what and how to report. Second, when accountants participate in company decisions concerning operating and financing alternatives, they may find ratio analysis helpful in evaluating available choices. Third, during the planning stages of an audit, independent auditors often use ratio analysis to identify potential audit problems and determine the specific audit procedures that should be performed.

We introduce ratios related to risk analysis in this chapter and ratios related to profitability analysis in Chapter 5. You will also employ ratios in Decision Makers' Perspective sections of many of the chapters in this text. Analysis cases that benefit from ratio analysis are included in many of these chapters as well.

Investors and creditors use financial information to assess the future risk and return of their investments in business enterprises. The balance sheet provides information useful in this assessment. A key element of risk analysis is investment in a company's ability to pay its obligations when they come due. This type of risk often is referred to as default risk. Another aspect of risk is operational risk, which relates more to how adept a company is at withstanding various events and circumstances that might impair its ability to earn profits. Obviously, these two types of risk are not completely independent of one another. Inability to earn profits certainly increases a company's chances of defaulting on its obligations. Conversely, regardless of a company's long-run prospects for generating profits, if it can't meet its obligations, the company's operations are at risk.

Assessing risk necessarily involves consideration of a variety of economywide risk factors such as inflation, interest rates, and the general business climate. Industrywide influences including competition, labor conditions, and technological forces also affect a company's risk profile. Still other risk factors are specific to the company itself. Financial ratios often are used in risk analysis to evaluate a company's liquidity and long-term solvency. As we discuss some of the more common ratios in the following paragraphs, keep in mind the inherent relationship between risk and return and thus between our risk analysis in this chapter and our profitability analysis in Chapter 5.



LIQUIDITY RATIOS

Liquidity refers to the readiness of assets to be converted to cash. By comparing a company's liquid assets with its short-term obligations, we can obtain a general idea of the firm's ability to pay its short-term debts as they come due. Usually, current assets are thought of as the most liquid of a company's assets. Obviously, though, some are more liquid than others, so it is important also to evaluate the specific makeup of current assets. Two common measures of liquidity are (1) the current ratio and (2) the acid-test ratio (or quick ratio), calculated as follows:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Acid-test ratio (or quick ratio)} = \frac{\text{Quick assets}}{\text{Current liabilities}}$$

We may regard the difference between current assets and current liabilities as a popular measure of a company's liquidity with respect to short-term obligations.

Current Ratio. Implicit in the definition of a current liability is the relationship between current assets and current liabilities. The difference between current assets and current liabilities is called **working capital**. By comparing a company's obligations that will shortly become due with the company's cash and other assets that, by definition, are expected to shortly be converted to cash, the ratio offers some indication as to ability to pay those debts. Although used in a variety of decisions, it is particularly useful to those considering whether to extend short-term credit. The **current ratio** is computed by dividing current assets by current liabilities. A current ratio of 2 indicates that the company has twice as many current assets available as current liabilities.

FedEx Corporation's working capital at the end of its 2004 fiscal year is \$218 million, consisting of current assets of \$4,370 million (Graphic 3-4 on page 106) minus current liabilities of \$4,152 million (Graphic 3-8 on page 109). The current ratio can be computed as follows:

$$\text{Current ratio} = \frac{\$4,370}{\$4,152} = 1.05$$

Working capital may not present an accurate or complete picture of a company's liquidity.

Care should be taken, however, in assessing liquidity based solely on working capital. Liabilities usually are paid with cash, not other components of working capital. A company could have difficulty paying its liabilities even with a current ratio significantly greater than 1.0. For example, if a significant portion of current assets consisted of inventories, and inventories usually are not converted to cash for several months, there could be a problem in paying accounts payable due in 30 days. On the other hand, a current ratio of less than 1.0 does not necessarily mean the company will have difficulty meeting its current obligations. A line of credit, for instance, which the company can use to borrow funds, provides financial flexibility. FedEx Corporation's 2004 annual report discloses \$1 billion in credit agreements with banks. This also must be considered in assessing liquidity.

ETHICAL DILEMMA



The Raintree Cosmetic Company has several loans outstanding with a local bank. The debt agreements all contain a covenant stipulating that Raintree must maintain a current ratio of at least .9. Jackson Phillips, company controller, estimates that the 2006 year-end current assets and current liabilities will be \$2,100,000 and \$2,400,000, respectively. These estimates provide a current ratio of only .875, violation of the debt agreement will increase Raintree's borrowing costs as the loans are renegotiated at higher rates.

Jackson proposes to the company president that Raintree purchase inventory of \$600,000 on credit before year end. This will cause both current assets and current liabilities to increase by the same amount, but the current ratio will increase to .9. The extra \$600,000 in inventory will be used over the later part of 2007. However, the purchase will cause warehousing costs and financing costs to increase.

Jackson is concerned about the ethics of his proposal. What do you think?



Acid-Test Ratio (or Quick Ratio). Some analysts modify the current ratio by excluding non-current assets that are readily convertible into cash (current assets). One such modification is the acid-test ratio, also known as the quick ratio. It excludes inventory and prepaid expenses from assets before dividing by current liabilities. The difference, then, consists of cash, short-term investments, and accounts receivable, the "quick assets." By eliminating current assets less readily convertible into cash, the acid-test ratio provides a more rigorous indication of liquidity than does the current ratio.

FedEx Corporation's quick assets at the end of 1997 (fiscal year) stood at \$44,073 (\$1,046 + \$3,027). The acid-test ratio can be computed as follows:

$$\text{Acid-test ratio} = \frac{\$44,073}{\$5,555} = 7.93$$

Are these liquidity ratios adequate? It's difficult to say without some point of comparison. As indicated previously, common standards for such comparisons are industry averages for similar ratios or ratios of the same company in prior years. Industry averages for the above two ratios are as follows:

$$\begin{aligned} \text{Industry Average} \\ \text{Current ratio} &= 1.5 \\ \text{Acid-test ratio} &= .95 \end{aligned}$$

FedEx Corporation's ratios are slightly less than the industry average. Is this an indication that liquidity is a problem for FedEx? Not necessarily, but it certainly would cause a red flag that calls for caution in analyzing other areas. Remember, each ratio is but one piece of the entire puzzle. For instance, profitability is perhaps the best indication of liquidity in the long run. We discuss ratios that measure profitability in Chapter 5.

Also, management may be very efficient in managing current assets so that receivable receivables are collected faster than normal or inventory is sold faster than normal, making gross assets more liquid than they otherwise would be. Hence, turnover ratios, relative to that of a company in the industry, generally indicate a more "productive" management level. If so, current ratios we discuss here, however, remain useful (Chapter 5).

FINANCING RATIOS

Investors and creditors, particularly long-term creditors, are vitally interested in a company's long-term solvency and stability. Financing ratios provide the means to do so. A company's long-term solvency is usually a product of long-term debt, which in turn is measured by the debt-to-equity ratio and 2) the times interest earned ratio. These ratios are calculated as follows:

$$\text{Debt-to-equity ratio} = \frac{\text{Total debt}}{\text{Shareholders' equity}}$$

$$\text{Times interest earned ratio} = \frac{\text{Net income} + \text{Interest expense}}{\text{Interest expense}}$$

Debt-to-Equity Ratio. The debt-to-equity ratio compares resources provided by creditors with resources provided by owners (shareholders). It is calculated by dividing total liabilities (current and long-term) by total shareholders' equity (including retained earnings).

The ratio provides a measure of creditors' protection in the event of insolvency. Other things being equal, the higher the ratio, the higher the risk. The higher the ratio, the greater the creditor claims on assets, so the higher the likelihood an individual creditor would not be paid in full if the company is unable to meet its obligations. Relatedly, a high ratio indicates an overly more fixed interest obligations, not probably a higher rate of interest as well because lenders tend to charge higher rates as the level of debt increases.

¹ Technically, and consistent with the debt-to-equity ratio is stated by dividing total liabilities by total assets (not total equity), rather than by dividing total liabilities by total shareholders' equity. However, since total assets is the same as total equity, the two ratios are identical.

The current ratio of 1.5 indicates that for every dollar of current liabilities, there is \$1.50 of current assets available to pay them.

FedEx Corporation

liquidity ratios, results are shown in the table below. The current ratio is 1.5, and the acid-test ratio is .95.

LOP



The debt-to-equity ratio is calculated by dividing total liabilities by total shareholders' equity. The ratio is 1.5, indicating that for every dollar of current liabilities, there is \$1.50 of current assets available to pay them.

FedEx Corporation

FedEx Corporation's total liabilities at the end of its 2014 fiscal year (in millions) are \$ 1,096 (current liabilities, \$4,732 + long-term debt, \$2,937 + other long-term liabilities, \$1,529)—Graphic 7-8 on page 109—and shareholders' equity (total) is \$8,036 million (Graphic 7-10 on page 111). The debt-to-equity ratio can be computed as follows:

$$\text{Debt-to-equity ratio} = \frac{\$1,096}{\$8,036} = .14$$

As with all ratios, the debt-to-equity ratio is more meaningful if compared to some standard such as an industry or a competitor. For example, the debt-to-equity ratio for United Parcel Service, Inc. (UPS), a major competitor, is .00, significantly lower than FedEx's ratio, indicating that UPS has less debt in its capital structure than does FedEx. Does this mean that UPS's default risk is less than that of FedEx? Other things equal—yes. Is that good? Not necessarily. As discussed in the next section, it may be that debt is being underutilized by UPS. More debt might increase the potential for return to shareholders, but the price would be higher risk. This is a fundamental trade-off faced by virtually all firms when trying to settle on the optimal capital structure.

The debt-to-equity ratio indicates the extent of trading on the equity or financial leverage.

Relationship between risk and profitability. The proportion of debt in the capital structure also is of interest to shareholders. After all, shareholders receive no return on their investments until after all creditor claims are paid. Therefore, the higher the debt-to-equity ratio, the higher the risk to shareholders. On the other hand, by earning a return on borrowed funds that exceeds the cost of borrowing the funds, a company can provide its shareholders with a return higher than it could achieve by employing equity funds alone. This is referred to as favorable financial leverage.

For illustration, consider a newly formed corporation attempting to determine the appropriate mix of debt and equity. The initial capitalization goal is \$50 million. The capitalization mix alternatives have been narrowed to two: (1) \$10 million in debt and \$40 million in equity and (2) \$30 million in debt and \$20 million in equity.

Also assume that, regardless of the capitalization mix chosen, the corporation will be able to generate a 16% annual return, before payments of interest and income taxes, on the \$50 million in assets acquired. In other words, income before interest and taxes will be \$8 million (16% × \$50 million). If the interest rate on debt is 8% and the income tax rate is 40%, comparative net income for the first year of operations for the two capitalization alternatives can be calculated as follows:

| | Alternative 1 | Alternative 2 |
|----------------------------------|------------------------|--------------------------|
| Income before interest and taxes | \$8,000,000 | \$8,000,000 |
| Less: Interest expense | (800,000) ^a | (2,400,000) ^a |
| Income before taxes | \$7,200,000 | \$5,600,000 |
| Less: Income tax expense (40%) | (2,880,000) | (2,240,000) |
| Net income | <u>\$4,320,000</u> | <u>\$3,360,000</u> |
| 40% × \$10,000,000 | | |
| 8% × \$30,000,000 | | |

Choose Alternative 1? Probably not. Although alternative 1 provides a higher net income, the return on the shareholders' equity (net income divided by shareholders' equity) is higher for alternative 2. Here's why:

| | Alternative 1 | Alternative 2 |
|---|------------------------------------|------------------------------------|
| Return on shareholders' equity ^b = | $\frac{\$4,320,000}{\$40,000,000}$ | $\frac{\$3,360,000}{\$20,000,000}$ |
| | 10.8% | 16.8% |

^aIf interest is calculated on average shareholders' equity, net income is typically reported after all interest is paid to shareholders to which they are entitled on the beginning, ending, and average shareholders' equity for the year. If no common stock dividends are paid, interest of interest is not.

| | Alternative 1 | Alternative 2 |
|--------------------------|------------------------------------|------------------------------------|
| Return on Assets (ROA) = | $\frac{\$4,320,000}{\$50,000,000}$ | $\frac{\$3,360,000}{\$50,000,000}$ |
| | 8.64% | 6.72% |

As in the case of the debt-to-equity ratio, the return on assets is higher for alternative 1.

Even though the return on assets is higher for alternative 1, the return on shareholders' equity is higher for alternative 2. Here's why:

Alternative 2 generates a higher return for each dollar invested by shareholders. This is because the company leveraged its \$20 million equity investment with additional debt. Because the cost of the additional debt (8%) is less than the return on assets invested (9%), the return to shareholders is higher. This is the essence of favorable financial leverage.

Be aware, though, leverage is not always favorable: the cost of borrowing the funds might exceed the return they provide. If the return on assets turned out to be less than expected, the additional debt could result in a lower return on equity for alternative 2. If, for example, the return on assets invested (before interest and taxes) had been 8% rather than 9%, alternative 1 would have provided the better return on equity.

| | Alternative 1 | Alternative 2 |
|----------------------------------|---------------|---------------|
| Income before interest and taxes | \$ 4,000 | \$3,000,000 |
| Less: Interest expense | 800,000 | 2,400,000 |
| Income before taxes | \$3,200,000 | \$ 600,000 |
| Less: Income tax expense (40%) | 1,280,000 | (240,000) |
| Net income | \$ 1,920,000 | \$ 360,000 |
| EPS | \$ 1.92 | \$ 0.36 |
| P/E | 10.00 | 10.00 |
| Return to shareholders equity | 3.1% | 1.8% |

So, shareholders typically are faced with a tradeoff between the risk that high debt decreases and the potential for a higher return from having the higher debt. In any event, the debt to equity ratio offers a basis for making the choice.

Times Interest Earned Ratio. Another way to gauge a company's ability to satisfy its fixed debt obligations is by comparing interest charges to income available to pay them. The times interest earned ratio is designed for this. It is calculated by dividing income before subtracting interest expense and income taxes by interest expense.

The times interest earned ratio is calculated by dividing income before subtracting interest expense and income taxes by interest expense.

Bondholders, noteholders, and other creditors can measure the margin of safety they are accorded by a company's earnings. If income is many times greater than interest expense, creditors' interests are more protected than if income just barely covers this expense. For this purpose, income should be the amount available to pay interest, which is income before subtracting interest and income taxes, calculated by adding back to net income the interest and taxes that were deducted.

As an example, FedEx Corporation's 2014 financial statements report the following data:

FedEx Corporation

| | (\$ in millions) |
|----------------------------------|------------------|
| Net income | \$ 838 |
| Interest expense | 136 |
| Income taxes | 481 |
| Income before interest and taxes | \$1,455 |

The times interest earned ratio can be computed as follows:

$$\text{Times interest earned ratio} = \frac{\$1,455}{\$136} = 10.7 \text{ times}$$

How much do shareholders get paid, if any, if assets should be:

| | Alternative I | Alternative II |
|-------------|---------------|----------------|
| Assets | 100 | 100 |
| Liabilities | 80 | 80 |
| Equity | 20 | 20 |

The ratio of 10.7 times indicates a considerable margin of safety for creditors' income could decrease many times and the company would still be able to meet its interest payment obligations.¹⁸ In comparison, UPS's times interest earned ratio for 2004 is 3.4 times. UPS has less interest-bearing debt in its capital structure than does FedEx and it earned slightly higher ROE than it.

Especially when viewed alongside the debt-equity ratio, the coverage ratio seems to indicate a comfortable safety cushion for creditors. It also indicates a degree of financial mobility. If the company were to decide to raise new debt funds to "trade on the equity" and attempt to increase the return to shareholders through favorable financial leverage.



FINANCIAL REPORTING CASE SOLUTION

- Respond to Jerry's criticism that shareholders' equity does not represent the market value of the company. What information does the balance sheet provide? (p. 103) Jerry is correct. The financial statements are supposed to help investors and creditors value a company. However, the balance sheet is not intended to portray the market value of the entity. The assets of a company minus its liabilities as shown in the balance sheet (shareholders' equity) usually will not equal the company's market value for several reasons. For example, many assets are measured at their historical costs rather than their market values. Also, many company resources including its trained employees, its experienced management team, and its reputation are not recorded as assets at all. The balance sheet must be used in conjunction with other financial statements, disclosure notes, and other publicly available information.

The balance sheet does, however, provide valuable information that can be used by investors and creditors to help determine market value. After all, it is the balance sheet that describes many of the resources a company has available for generating future cash flows. The balance sheet also provides important information about liquidity and long-term solvency.

- The usefulness of the balance sheet is enhanced by classifying assets and liabilities according to common characteristics. What are the classifications used in Electronic Arts' balance sheet and what elements do those categories include? (p. 104)

Electronic Arts' balance sheet contains the following classifications:

Assets

- Current assets** include cash and several other assets that are reasonably expected to be converted to cash or consumed within the coming year, or within the normal operating cycle of the business if that's longer than one year.
- Property and equipment** are the tangible long-lived assets used in the operations of the business. This category includes land, buildings, equipment, machinery, and furniture, as well as natural resources.
- Investments in affiliates** are investments in debt and equity securities of affiliated companies.
- Goodwill** is a unique intangible asset in that its cost can't be directly associated with any specifically identifiable right and is not separable from the company as a whole. It represents the unique value of the company as a whole over and above all identifiable tangible and intangible assets.
- Other intangibles** are assets that represent exclusive rights to something such as a product, a process, or a name. Patents, copyrights, and franchises are examples.
- Long-term deferred income taxes** result from temporary differences between taxable income and accounting income.

¹⁸Of course, interest is paid with cash, not with earnings. The times interest earned ratio is calculated by using cash flow from operations divided by interest expense. For Microsoft, this ratio is 10.7 times.

- **Other assets** is a "catch-all" classification of noncurrent assets and could include long-term prepaid expenses and any noncurrent asset not included in one of the other categories.

Liabilities

Current liabilities are those obligations that are expected to be satisfied through the use of current assets or the creation of other current liabilities. Usually, this means liabilities that are expected to be paid within one year or the operating cycle, whichever is longer.

Shareholders' equity

- **Common stock and paid-in capital** collectively equal the amount invested by shareholders in the corporation.
- **Retained earnings** represents the accumulated net income earned since inception of the corporation and not yet paid out to shareholders as dividends.
- **Accumulated other comprehensive income** is the cumulative amount of other comprehensive income items. This topic is addressed in subsequent chapters. ■

THE BOTTOM LINE

1. The balance sheet is a position statement that presents an organized array of assets, liabilities, and shareholders' equity at a particular point in time. The statement does not portray the market value of the entity. However, the information in the statement can be useful in assessing market value, as well as in providing important information about liquidity and long-term solvency.
2. Current assets include cash and other assets that are reasonably expected to be converted to cash or consumed during one year or within the normal operating cycle of the business if the operating cycle is longer than one year. All other assets are classified as various types of noncurrent assets. Current liabilities are those obligations that are expected to be satisfied through the use of current assets or the creation of other current liabilities. All other liabilities are classified as long-term.
3. In addition to cash and cash equivalents, current assets include short-term investments, accounts receivable, inventories, and prepaid expenses. Other asset classifications include investments in funds, property, plant, and equipment, intangible assets, and other assets.
4. Current liabilities include notes and accounts payable, unearned revenues, accrued liabilities, and the current maturities of long-term debt. Long-term liabilities include long-term notes, bonds, mortgages, bonds payable and lease obligations, as well as deferred income taxes.
5. Financial disclosures are used to convey additional information about the accounts balances in the basic financial statements as well as to provide supplemental information. This information is disclosed parenthetically in the basic financial statements or in notes or supplemental financial statements.
6. Annual financial statements will include management's discussion and analysis of key aspects of the company's business. The purpose of this disclosure is to provide external parties with management's insight into certain transactions, events, and circumstances that affect the enterprise, including their financial impact.
7. The purpose of an audit is to provide a professional, independent opinion as to whether or not the claims in statements and reports in conformity with GAAP. The audit report contains three paragraphs: the first two deal with the scope of the audit and the third paragraph states the auditor's opinion.
8. Financial analysts use various techniques to transform financial information into forms more useful for analysis. Horizontal analysis and vertical analysis provide a useful way of analyzing year-to-year changes. Ratio analysis allows analysts to control for size differences over time and across firms while investigating key important relationships among financial variables.
9. The balance sheet provides information that can be useful in assessing risk. A key element of risk analysis is investigating a company's ability to pay its obligations when they come due. Liquidity ratios and financing ratios provide information about a company's ability to pay its obligations. ■



| | |
|---|----------|
| A | 100.0000 |
| B | 100.0000 |
| C | 100.0000 |
| D | 100.0000 |
| E | 100.0000 |
| F | 100.0000 |
| G | 100.0000 |
| H | 100.0000 |
| I | 100.0000 |
| J | 100.0000 |

Segment reporting
statement analysis of
diversified companies

Reporting Segment Information

Financial analysis of diversified companies is especially difficult. Consider, for example, a company that operates in several distinct business segments including computer peripherals, home health care systems, textiles, and consumer food products. The results of these distinctly different activities will be aggregated into a single set of financial statements, making difficult an informed projection of future performance. It may well be that the five-year outlook differs greatly among the areas of the economy represented by the different segments. To make matters worse for an analyst, the integrated financial statements do not reveal the relative investments in each of the business segments nor the success the company has had within each area. Given the fact that so many companies these days have chosen to balance their operating risks through diversification, aggregated financial statements pose a widespread problem for analysts, lending and credit officers, and other financial decision-makers.

Reporting by Operating Segment

To address the problem, the accounting profession requires companies engaged in more than one significant line of business to provide supplemental information on their major reportable operating segments. The supplemental or segregated data do not include complete financial statements for each reportable segment, but certain specified items.

Prior to 1997, SFAS 14, "Financial Reporting for Segments of a Business Enterprise," provided the specific reporting requirements for segment reporting.² SFAS 14 applied the industry approach in determining reportable segments. The standard was the subject of much criticism because it allowed for inconsistent definitions of the term *industry* demonstrated by companies applying the standard. This inconsistency reduced the relevance and comparability of segment disclosures. In June 1997, the Financial Accounting Standards Board issued SFAS 131 to replace SFAS 14.

WHAT IS A REPORTABLE OPERATING SEGMENT?

The new standard employs a *management approach* in determining which segments of a company are reportable. This approach is based on the way that management organizes the segments within the enterprise for monitoring ongoing decisions and assessing performance. The segments are, therefore, evident from the structure of the enterprise's internal organization.

More formally, the following characteristics define an operating segment:³

An operating segment is a component of an enterprise

- That engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the same enterprise)
- Whose operating results are regularly reviewed by the enterprise's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance
- For which discrete financial information is available

The FASB hopes that this new approach provides insights into the risks and opportunities management sees in the various areas of company operations. Also, reporting information based on the enterprise's internal organization should reduce the incremental cost to companies of providing the data. In addition, the board added quantitative thresholds to the definition of an operating segment to limit the number of reportable segments. Only segments of certain size (10% or more of total company revenues, assets, or net income) must be disclosed. However, a company must account for at least 75% of consolidated revenue through segment disclosures.

² SFAS 14, "Financial Reporting for Segments of a Business Enterprise," Statement of Financial Accounting Standards No. 14, Issued 7-1-80.

³ Disclosures about Segments of an Enterprise and Related Information, "Statement of Financial Accounting Standards No. 131 (Issued July 1997)," July 10.



WHAT AMOUNTS ARE REPORTED BY AN OPERATING SEGMENT?

For areas determined to be reportable operating segments, the following disclosures are required:

- General information about the operating segment.
- Information about reported segment profit or loss, including certain revenues and expenses included in reported segment profit or loss, segment assets, and the basis of measurement.
- Reconciliations of the totals of segment revenues, reported profit or loss, assets, and other significant items to corresponding enterprise amounts.
- Interim period information.¹⁰

Graphic 3A-1 shows the business segment information reported by JM Co. in its 2003 annual report.

**Business Segment
Information**
in Billions

| | | Net
Sales | Operating
Income | Assets | Depr. and
Amort. | Capital
Expendit. |
|---|------|--------------|---------------------|---------|---------------------|----------------------|
| Home Care | 2003 | \$ 3,995 | \$1,027 | \$ 544 | \$ 169 | \$144 |
| | 2002 | 560 | 400 | 319 | 134 | 33 |
| | 2001 | 7,221 | 753 | 100 | 187 | 171 |
| Industrial | 2003 | 3,354 | 438 | 653 | 212 | 161 |
| | 2002 | 47 | 487 | 625 | 191 | 58 |
| | 2001 | 7,453 | 457 | 660 | 99 | 207 |
| Graphic and
Imaging | 2003 | 2,962 | 885 | 570 | 159 | 126 |
| | 2002 | 2,758 | 534 | 436 | 75 | 84 |
| | 2001 | 927 | 312 | 634 | 60 | 17 |
| Government and
Military | 2003 | 2,607 | 460 | 1,378 | 108 | 86 |
| | 2002 | 614 | 446 | 434 | 108 | 40 |
| | 2001 | 6,563 | 410 | 1,629 | 32 | 123 |
| Safety, Security, and
Performance Services | 2003 | 1,928 | 487 | 339 | 100 | 46 |
| | 2002 | 1,666 | 366 | 39 | 97 | 35 |
| | 2001 | 1,637 | 302 | 055 | 04 | 22 |
| Graphic Arts
and Communications | 2003 | 1,818 | 255 | 568 | 152 | 43 |
| | 2002 | 1,63 | 256 | 613 | 37 | 7 |
| | 2001 | 6,617 | 215 | 58 | 36 | 48 |
| Information | 2003 | 1,538 | 389 | 872 | 60 | 64 |
| | 2002 | 1,328 | 31 | 746 | 68 | 58 |
| | 2001 | 1,306 | 2 | 618 | 64 | 70 |
| Financial and
Insurance | 2003 | 10 | (198) | 1,874 | 10 | 7 |
| | 2002 | 44 | 14 | 819 | 56 | 8 |
| | 2001 | 18 | 502 | 730 | 91 | 28 |
| Total Company | 2003 | \$10,000 | \$3,713 | \$5,600 | \$ 964 | \$677 |
| | 2002 | 14,732 | 3,046 | 3,119 | 954 | 743 |
| | 2001 | 16,054 | 2,277 | 606 | 1,087 | 990 |

GRAPHIC 3A-1

Business Segment
Information
Disclosure—JM Co.

REPORTING BY GEOGRAPHIC AREA

In today's global economy it is somewhat difficult to distinguish domestic and foreign companies. Most large U.S. firms conduct substantial operations in other countries in addition to having substantial export sales from this country. Differing political and economic environments, different currency means, and different accounting standards sometimes vary greatly among the various operations. For example, in Europe multiple listing of shares on a single American money market is not legal, direct gas inflation risks from having a plant in Vermont, or even Canada. Without disaggregated financial information, these differences cause problems for analysis.

SSAS 154 requires an enterprise to report certain geographic information unless it is impracticable to do so. This information includes:

- Revenues from external customers: (1) attributed to the enterprise's country of domicile and (2) attributed to all foreign countries in total from which the enterprise derives revenues; and
- Long-term assets, other than financial instruments, long-term customer relationships, or a financial instrument, mortgage, and other securities rights, deferred policy acquisition costs, and deferred tax assets: (1) located in the enterprise's country of domicile and (2) located in all foreign countries in total in which the enterprise holds assets.⁴⁸

3M reported its geographic area information separately in a table reproduced in Graphic 3A-2. Notice that both the business segment (Graphic 3A-1) and geographic information disclosures include a reconciliation to company totals. For example, in both graphics, year 2003 net sales of both the segments and the geographic areas are reconciled to the company's total net sales of \$18,232 (\$ in millions).

GRAPHIC 3A-2 Geographic Area Information Disclosure—3M Company

| Geographic Area Information (\$ in millions) | | | | | | |
|--|------|---------------|------------------------|--------------|----------------------------------|-------------------|
| | | United States | Europe and Middle East | Asia Pacific | Latin America, Africa and Canada | Other Unallocated |
| Net sales | 2003 | \$7,581 | \$4,424 | \$1,115 | \$1,655 | \$3,411 |
| | 2002 | 7,426 | 4,335 | 1,111 | 1,392 | 488 |
| | 2001 | 7,577 | 4,965 | 1,111 | 1,494 | 34 |
| Operating income | 2003 | \$1,113 | \$,800 | \$,111 | \$,436 | \$,099 |
| | 2002 | 1,187 | 884 | 1,111 | 790 | (2,111) |
| | 2001 | 1,128 | 811 | 1,111 | 860 | (493) |
| Property, plant, and equipment, net | 2003 | \$7,111 | \$,111 | \$,111 | \$,111 | \$,111 |
| | 2002 | 6,522 | 1,111 | 1,111 | 784 | 5,621 |
| | 2001 | 5,675 | 978 | 1,111 | 332 | 5,015 |

FedEx Corporation

For another example of both business segment and geographic area disclosures, see the FedEx Corporation segment information in Appendix B located at the back of this text.

INFORMATION ABOUT MAJOR CUSTOMERS

Some companies in the defense industry derive substantial portions of their revenues from contracts with the Defense Department. When cutbacks occur in national defense or in specific defense systems, the impact on a company's operations can be considerable. Obviously, financial analysts are extremely interested in information concerning the extent to which a

Revenues from major customers must be disclosed.

company's primary depends on one or more major customers such as in the situation described here. For this reason, if 10% or more of the revenue of an enterprise is derived from transactions with a single customer, the enterprise must disclose that fact, the total amount of revenue from each such customer, and the identity of the operating segment or segments earning the revenue. The identity of the major customer or customers need not be disclosed, although companies routinely provide this information. In its 2013 annual report, TM disclosed some of its major customer information. As an example of this type of disclosure, **Procter & Gamble Company's** business segment disclosure included information on its largest customer **Walmart**, as shown in Exhibit 3A-3. ■

Note 32. Segment Information (in part)

The following table provides information on the company's sales and operating results for a 7% to 14.9% range of revenue. For the year ended 2014, the company's sales were \$1.3 billion. These sales were primarily in the United States.

GRAPHIC 3A-3

Major Customer Disclosure—Procter & Gamble Company

PERSPECTIVE

There is more international uniformity regarding disaggregated disclosures than with many other accounting issues. Many countries adopt the *International Accounting Standard No. 14, "Reporting Financial Information by Segment,"* issued in 1980 by the International Accounting Standards Committee. Under this standard, companies report revenues, identifiable assets and capital expenditures for both industry segments and geographic segments. In 2005, the IASB converged IAS 14 with SFAS 131, adopting the management approach found in U.S. GAAP.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 3-1 Describe the purpose of the balance sheet.
- Q 3-2 Explain why the balance sheet does not portray the market value of the entity.
- Q 3-3 Define current assets and list the typical asset categories included in this classification.
- Q 3-4 Define current liabilities and list the typical liability categories included in this classification.
- Q 3-5 Describe what is meant by an operating cycle for a typical manufacturing company.
- Q 3-6 Explain the difference between investments in equity securities classified as current assets versus those classified as noncurrent assets.
- Q 3-7 Describe the common characteristics of assets classified as property, plant, and equipment and identify some assets included in this classification.
- Q 3-8 Distinguish between property, plant, and equipment and intangible assets.
- Q 3-9 Explain how each of the following liabilities would be classified on the balance sheet.
 - A note payable of \$1,000,000 due in five years.
 - A note payable of \$1,000,000 payable in annual installments of \$200,000 each, with the first installment due in one year.
- Q 3-10 Define *earnings paid-in-capital* and *retained earnings*.
- Q 3-11 Discuss how any one integral part of the information provided to financial stakeholders, in what ways are the notes critical to understanding the financial statements and to evaluating the firm's performance and financial health?
- Q 3-12 A summary of the company's significant accounting policies is a required disclosure. Why is this disclosure important to external financial statement users?
- Q 3-13 Define *subsequent event*.
- Q 3-14 Every annual report includes an extensive explanation and analysis provided by the company's management. Specifically, which aspects of the company must this disclosure address? Is the management's perspective on the business to be used to estimate its performance?

- Q 3-15** The auditor's report provides the analyst with an independent and professional opinion about the fairness of the representations in the financial statements. What are the four main types of opinion an auditor might issue? Describe each.
- Q 3-16** What is a proxy statement? What information does it provide?
- Q 3-17** Define the terms *working capital*, *current ratio*, *ratio*, *debt-to-equity ratio*, and *quick ratio*.
- Q 3-18** Show the calculation of the following financial ratios: (1) the debt-to-equity ratio, and (2) the times interest earned ratio.
- Q 3-19** (Based on Appendix 3) Segment reporting substitutes the financial statement analysis of diverse food companies. What determines whether an operating segment is a reportable segment for this purpose?
- Q 3-20** (Based on Appendix 3) For segment reporting purposes, what amounts are reported by each operating segment?

BRIEF EXERCISES

BE 3-1
Current versus
noncurrent classification

LO 3-1

BE 3-2
Balance sheet
classification

LO 3-1, LO 3-4

BE 3-3
Balance sheet
classification

LO 3-1, LO 3-4

BE 3-4
Balance sheet
preparation

LO 3-1 through LO 3-4

BE 3-5
Balance sheet
preparation

LO 3-1 through LO 3-4

BE 3-6
Balance sheet
classification

LO 3-1 through LO 3-4

Indicate whether each of the following assets and liabilities should be classified as current or noncurrent: account receivable (to be paid next for the next 30 months); note receivable due in six months; note payable due in 90 days; note payable due in five years; and (1) patent.

The trial balance for K and J Nursery, Inc., at the following account balances at December 31, 2016, the end of its fiscal year: cash, \$16,000; accounts receivable, \$11,000; inventories, \$33,000; equipment (net), \$90,000; accounts payable, \$4,000; wages payable, \$2,000; interest payable, \$1,000; note payable (due in 18 months), \$30,000; common stock, \$50,000. Prepare (a) the current assets and total current liabilities that would appear in the company's year-end balance sheet.

Refer to the situation described in BE 3-5. Compute the year-end balance in retained earnings for K and J Nursery, Inc.

Refer to the situation described in BE 3-5. Prepare a classified balance sheet for K and J Nursery, Inc. The equipment originally cost \$140,000.

The following is a December 31, 2016, trial balance for Golden City Lighting, Inc. Prepare a classified balance sheet for the company.

| Account Title | Debits | Credits |
|---|---------|---------|
| Cash | 55,000 | |
| Accounts receivable | 39,000 | |
| Inventories | 45,000 | |
| Prepaid insurance | 15,000 | |
| Equipment | 100,000 | |
| Accumulated depreciation—equipment | | 24,000 |
| Patent, net | 40,000 | |
| Accounts payable | | 12,000 |
| Interest payable | | 4,000 |
| Note payable (due in 90, equal annual installments) | | 100,000 |
| Common stock | | 70,000 |
| Retained earnings | | 16,000 |
| Totals | 294,000 | 294,000 |

You have been asked to review the December 31, 2016, trial balance above and the accompanying financial statements. An accountant at \$10,000 per month has been hired to liquidate the investment in Golden City Lighting, Inc. as a part of the liquidation process. The accountant has advised that it has been determined that the investment in Golden City Lighting, Inc. should be classified as a noncurrent asset.

The accountant has also advised that it has been determined that the investment in Golden City Lighting, Inc. should be classified as a noncurrent asset. The accountant has also advised that it has been determined that the investment in Golden City Lighting, Inc. should be classified as a noncurrent asset. The accountant has also advised that it has been determined that the investment in Golden City Lighting, Inc. should be classified as a noncurrent asset.

1. Unmatured revenue of \$40,000 is included as a current liability even though only two-thirds will be received in 2007.

Determine the appropriate classification of each of these items.

The following information is taken from the balance sheet of Blumens Plumbing: cash and cash equivalents: \$40,000; accounts receivable: \$ 20,000; inventories: \$ total current assets: \$245,000; property, plant, and equipment (net): \$ total assets: \$440,000; accounts payable: \$31,000; note payable (due in two years): \$40,000; common stock: \$ 30,000; and retained earnings. ⁷ Determine the missing amounts.

L
Balance sheet
preparation, missing
elements

M Multiple-choice

EF 3-6
Financial disclosures

10

EF 3-7
Calculating ratios

10

EF 3-8
Effect of decisions on
ratios

10

II
Calculating ratios,
solving for unknowns

10

For each of the following note disclosures, indicate whether the disclosure would likely appear in (A) the summary of significant accounts policies, (B) a separate note, (C) depreciation methods, (D) contingency information, (E) significant balance of common stock after the fiscal year-end, (F) cash equivalent description, (G) long-term debt information, and (H) treasury stock method.

Refer to the total balance information in EF 3-9. Calculate the (a) current ratio, (b) acid-test ratio, and (c) debt to equity ratio.

At the end of 2006, Harker Corporation's preliminary trial balance indicated a current ratio of 1.2. Management is contemplating paying off its accounts payable balance before the end of the fiscal year. Explain the effect that transaction would have on the current ratio. Would your answer be the same if the preliminary trial balance indicated a current ratio of 4?

The current asset section of Scribb Pharmaceuticals Company's balance sheet included cash of \$70,000 and accounts receivable of \$40,000. The only other current asset is inventories. The company's current ratio is 2.0 and its acid-test ratio is 1.4. Determine the ending balance in inventories and total current liabilities.

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/hgfa14e

L
Balance sheet missing
elements

10 103 04 08

The following December 31, 2006, five-year-end adjusted balance information is available for the Stone Bridge Corporation:

| | |
|--------------------------------------|----------|
| Cash and cash equivalents | \$ 5,000 |
| Accounts receivable (net) | 20,000 |
| Inventories | 60,000 |
| Property, plant, and equipment (net) | 120,000 |
| Accounts payable | 44,000 |
| Notes payable | 5,000 |
| Paid-in-capital | 100,000 |

The only asset not listed is short-term investments. The only liabilities not listed are a \$30,000 note payable due in two years and related accrued interest of \$ 1,000 due in four months. The current ratio at year end is 1.2.

Required:

Determine the following in this chapter: **Yes**

1. Short-term asset
2. Short-term investments
3. Retained earnings

F 3-4
Balance sheet
classification

10 103 04

The following are the typical classifications used on a balance sheet:

- | | |
|-----------------------------------|--------------------------|
| a. Current assets | 1. Current liabilities |
| b. Long-term assets and funds | 2. Long-term liabilities |
| c. Property, plant, and equipment | 3. Paid-in-capital |
| d. Intangible assets | 4. Retained earnings |
| e. Other assets | |

Required:

For each of the following balance sheet items, use the letters above to indicate the appropriate classification category. If the item is a contra account, place a minus sign before the chosen letter.

E 3-3
Balance sheet
classification

LO 2, LO 4

| | |
|---|------------------------------------|
| 1. _____ Equipment | 11. _____ Miscellaneous |
| 2. _____ Accounts payable | 12. _____ Patents |
| 3. _____ Allowance for uncollectible accounts | 13. _____ Land, in use |
| 4. _____ Notes held for investment | 14. _____ Accumulated depreciation |
| 5. _____ Notes payable, due in 5 years | 15. _____ Preferred stock |
| 6. _____ Uncollected revenue | 16. _____ Common stock |
| 7. _____ Notes payable, due in 3 months | 17. _____ Retained earnings |
| 8. _____ Accounts receivable, net | 18. _____ Cash |
| 9. _____ Investments in other companies | 19. _____ Taxes payable |

The following are the account titles that appear on a balance sheet.

| | |
|---|--------------------------------|
| a. _____ Other assets | f. _____ Intangible assets |
| b. _____ Investments in other companies | g. _____ Long-term liabilities |
| c. _____ Property, plant, and equipment | h. _____ Paid-in capital |
| d. _____ Liabilities to stockholders | i. _____ Retained earnings |
| e. _____ Other assets | |

Required:

For each of the following 2006 balance sheet items, use the letters above to indicate the appropriate balance sheet category. If the item is a contra account, place a minus sign before the chosen letter.

| | |
|--|--------------------------------------|
| 1. _____ Accounts receivable | 10. _____ Supplies |
| 2. _____ Intangible | 11. _____ Machinery |
| 3. _____ Accumulated depreciation | 12. _____ Land, in use |
| 4. _____ Expense reserve for 2006 | 13. _____ Unearned revenue |
| 5. _____ Bonds payable, due in 10 years | 14. _____ Copyrights |
| 6. _____ Current maturities of long-term debt | 15. _____ Preferred stock |
| 7. _____ Notes payable, due in three months | 16. _____ Land, held for speculation |
| 8. _____ Long-term receivables | 17. _____ Cash equivalents |
| 9. _____ Bond sinking fund, will be paid to retire bonds in 10 years | 18. _____ Wages payable |

E 3-4
Balance sheet
preparation

LO 2 through LO 4

The following is a December 31, 2006, post-closing trial balance for the Jackson Corporation.

| Account Title | Debits | Credits |
|------------------------------------|----------------|----------------|
| Cash | \$0,000 | |
| Accounts receivable | \$0,000 | |
| Inventories | 75,000 | |
| Prepaid rent | 10,000 | |
| Marketable securities (short term) | 10,000 | |
| Warranty | 145,000 | |
| Accumulated depreciation—machinery | | 11,000 |
| Accumulated depreciation—buildings | 83,000 | |
| Accounts payable | | 1,000 |
| Wages payable | | 4,000 |
| Taxes payable | | 32,000 |
| Bonds payable (due in 10 years) | | 200,000 |
| Common stock | | 60,000 |
| Retained earnings | | 49,000 |
| Totals | <u>407,000</u> | <u>407,000</u> |

Required:

Prepare a classified balance sheet for Jackson Corporation as of December 31, 2006.

E 3-5
Balance sheet
preparation

LO 2 through LO 4

The following is a December 31, 2006, post-closing trial balance for the Valley Pump Corporation.

| Account Title | Debits | Credits |
|------------------------------------|---------|---------|
| Cash | 25,000 | |
| Accounts receivable | \$0,000 | |
| Inventories | 61,000 | |
| Intangible assets | | 10,000 |
| Marketable securities | 44,000 | |
| Land | 120,000 | |
| Buildings | 300,000 | |
| Accumulated depreciation—buildings | | 100,000 |
| Equipment | 75,000 | |

| | | |
|--------------------------------------|---------|---------|
| Accumulated depreciation—equipment | | 25,000 |
| Copyright (net of amortization) | 12,000 | |
| Prepaid expenses | 30,000 | |
| Accounts payable | | 65,000 |
| Interest on notes | | 25,000 |
| Notes payable | | 250,000 |
| Allowance for uncollectible accounts | | 5,000 |
| Common stock | | 200,000 |
| Retained earnings | | 70,000 |
| Totals | 745,000 | 745,000 |

Additional information:

The \$12,000 balance in the asset account consists of \$10,000 for the cost of land where the plant and office buildings are located. The remaining \$20,000 represents the cost of land being held for speculation. The \$45,000 in the marketable securities account represents an investment in the common stock of another corporation. Valley intends to sell one-half of the stock within the next year.

3. The notes payable consist entirely of a \$200,000 note due in six months and a \$50,000 note due in three months with monthly payments of \$5,000 each, with the first payment due in August of 2007.

Required:

Prepare a classified balance sheet for the Valley Pump Corporation at December 31, 2006.

The following balance sheet for the Lee Gatos Corporation was prepared by a recently hired accountant. In reviewing the statement you notice several errors.

Exercise sheet:
preparation, errors

101 through 104

LEE GATOS CORPORATION
Balance Sheet
At December 31, 2006

| Assets | |
|--|------------------|
| Cash | \$ 40,000 |
| Accounts receivable | 90,000 |
| Investments | 50,000 |
| Marketable securities | 100,000 |
| Franchise fees | 80,000 |
| Total assets | <u>\$360,000</u> |
| Liabilities and Shareholders' Equity | |
| Accounts payable | \$ 20,000 |
| Allowance for uncollectible accounts | 10,000 |
| Notes payable | 100,000 |
| Bonds payable | 100,000 |
| Shareholders' equity | 130,000 |
| Total liabilities and shareholders' equity | <u>\$360,000</u> |

Additional information:

- Cash includes a \$20,000 bond sinking fund to be used for repayment of the bonds payable in 2010.
2. The cost of the investments is \$100,000.
3. Accounts receivable includes a \$50,000 note receivable from a customer due in 2007.
4. The bonds payable includes accrued interest of \$4,000. Principal and interest are both due on February 1, 2007.
5. The company began operations in 2005. Income tax dividends since inception of the company totals \$25,000.
6. 50,000 shares of \$2 par common stock were issued in 2005. 100,000 shares are authorized.

Required:

Prepare a corrected, classified balance sheet.

Exercise sheet:
balance sheet, current
assets, liabilities, and
equity

101 through 104

Cone Corporation is in the process of preparing its December 31, 2006 balance sheet. There are some questions as to the proper classification of the following items:

- a. \$50,000 in cash set aside in a savings account to pay bonds payable. The bonds mature in 2010.
b. Prepaid rent of \$24,000 covering the period January 1, 2007 through December 31, 2008.
c. Note payable of \$200,000. The note is payable in equal installments of \$20,000 each, with the first installment payable on March 1, 2007.
d. Accrued interest payable of \$1,000 related to the note payable.
e. Investment in marketable securities of other corporations, \$80,000. Cone intends to sell one-half of the securities in 2007.

Required

Prepare a partial classified balance sheet to show how each of the above items should be reported.

The following is the balance sheet of Kurner Supply Company at December 31, 2005.

E 2-8

Balance sheet preparation—cash versus accrual accounting, Chapters 2 and 3

• LO2 through LO4

KURNER SUPPLY COMPANY
Balance Sheet
At December 31, 2005

| Assets | |
|--|-------------------|
| Cash | \$120,000 |
| Accounts receivable | 300,000 |
| Inventories | 200,000 |
| Furniture and fixtures, net | 150,000 |
| Total assets | <u>\$770,000</u> |
| Liabilities and Shareholders' Equity | |
| Accounts payable for merchandise | \$ 90,000 |
| Note payable | 100,000 |
| Interest payable | 5,000 |
| Common stock | 200,000 |
| Retained earnings | 140,000 |
| Total liabilities and shareholders' equity | <u>\$ 770,000</u> |

Transactions during 2006 were as follows:

| | |
|---------------------------------------|-----------|
| 1. Sales to customers on account | \$600,000 |
| 2. Cash collected from customers | 780,000 |
| 3. Purchase of merchandise on account | 150,000 |
| 4. Cash payment to suppliers | \$60,000 |
| 5. Cost of merchandise sold | \$400,000 |
| 6. Cash paid for operating expenses | 60,000 |
| 7. Cash paid for interest on note | 2,000 |

The note payable is dated June 30, 2005 and is due on June 30, 2007. Interest is 6% is payable quarterly on June 30. Depreciation on the furniture and fixtures for the year is \$20,000. The furniture and fixtures originally cost \$170,000.

Required

Prepare a classified balance sheet at December 31, 2006. Ignore income taxes.

E 2-9

Financial disclosures

• LO5

The following are typical disclosures that would appear in the notes accompanying financial statements. For each of the items listed, indicate where the disclosure would likely appear—either in (A) the significant accounting policies note or (B) a separate note.

| | |
|--|----------|
| 1. Inventory costing method | <u>A</u> |
| 2. Information on related party transactions | <u>—</u> |
| 3. Description of property, plant, and equipment | <u>—</u> |
| 4. Depreciation method | <u>—</u> |
| 5. Subsequent event information | <u>—</u> |
| 6. Basis of revenue recognition on long-term contracts | <u>—</u> |
| 7. Impairment or gain or loss other than gain | <u>—</u> |
| 8. Compensation of top executives | <u>—</u> |

E 3-10

Disclosure notes

• LO5

Hallergan Company produces and tracks bicycles that it sells primarily to auto manufacturers. Dorothy Hawkins, the company's controller, is preparing the financial statements for the year ended December 31, 2006. Hawkins asks for your advice concerning the following information that has not yet been included in the statements. The statements will be dated on February 28, 2007.

- Hallergan leases its facilities from the brother of the chief executive officer.
- On January 6, 2007, Hallergan entered into an agreement to sell a tract of land that it had been holding as an investment. The sale, which resulted in a material gain, was completed on February 2, 2007.
- Hallergan uses the straight-line method to determine depreciation on all of the company's depreciable assets.
- On February 6, 2007, Hallergan completed negotiations with its bank for a \$10,000,000 line of credit.
- Hallergan uses the first-in, first-out (FIFO) method to value inventory.

Required

For each of the above items, discuss any additional disclosures that Hawkins should include in Hallergan's financial statements.

1. Multiple-choice.
What is the purpose of the balance sheet?

2. Multiple-choice.

The following questions dealing with disclosures are adapted from questions that appeared on CPA exams. Determine the response that best completes the statement or question.

- What is the purpose of information presented as notes to the financial statements?
 - To provide disclosures required by generally accepted accounting principles.
 - To correct improper presentation in the financial statements.
 - To provide recognition of adjustments included in the notes of the financial statements.
 - To present management's responses to auditor comments.
- Which of the following illustrations should be disclosed in the summary of significant accounting policies?
 - Refinancing of debt subsequent to the balance sheet date.
 - Classification of liabilities as current.
 - Criteria for determining which investments are treated as cash equivalents.
 - Adequacy of insurance plan assets relative to vested benefits.
- Which of the following facts concerning fixed assets should be included in the summary of significant accounting policies?

| | Depreciation Method | Composition |
|----|---------------------|-------------|
| a. | No | Yes |
| b. | Yes | Yes |
| c. | Yes | No |
| d. | No | No |

3. Multiple-choice.
Which of the following is not a term associated with the balance sheet and financial disclosures?

Which of the following is not a term associated with the balance sheet and financial disclosures? For each item from List A, by letter, write the item from List B that is most appropriately associated with it.

4. Multiple-choice.

| List A | List B |
|--|---|
| 1. Balance sheet | a. Will be satisfied through the use of current assets. |
| 2. Liquidity | b. Having expected cash inflows to equal or exceed outflows within one year or the operating cycle. |
| 3. Current assets | c. The statements are presented fairly in conformity with GAAP. |
| 4. Operating cycle | d. An organized array of assets, liabilities and equity. |
| 5. Current liabilities | e. Important to a user in comparing financial information across companies. |
| 6. Cash equivalent | f. Supply limitations or a departure from GAAP. |
| 7. Intangible asset | g. Recording when an expense is incurred but not yet paid. |
| 8. Working capital | h. Disposal or incurrence of debt before an asset is converted to cash or a liability is paid. |
| 9. Asset-liability | i. For assets that are year-end but before the statements are issued. |
| 10. Summary of significant accounting policies | j. Cash to cash. |
| 11. Unqualified opinion | k. Cash to cash. |
| 12. Qualified opinion | l. Current assets minus current liabilities. |
| | m. Assets physical substance. |

5. Multiple-choice.
Calculating ratios

The following balance sheet of Hallbrook Industries, Inc. is shown below.

HALLBROOK INDUSTRIES, INC.
Balance Sheet
December 31, 2006
\$ in 000s

| Assets | |
|---|----------------|
| Cash | \$ 200 |
| Short-term investments | 150 |
| Accounts receivable | 300 |
| Inventory | 150 |
| Property plant and equipment (net) | 1,200 |
| Total assets | \$2,000 |
| Liabilities and Shareholders' Equity | |
| Current liabilities | \$ 400 |
| Long-term debt | 200 |
| Preferred stock | 50 |
| Retained earnings | 400 |
| Total liabilities and shareholders' equity | \$2,000 |

The company's 2006 income statement reported the following amounts (\$ in 000s):

| | |
|--------------------|---------|
| Net sales | \$4,600 |
| Interest expense | 80 |
| Income tax expense | 100 |
| Net income | 160 |

Required:

Determine the following ratios for 2006:

1. Current ratio
2. Acid-test ratio
3. Debt to equity ratio
4. Times interest earned ratio

E 3-14

Calculating ratios,
solve for unknowns

• L14

The current asset section of the Excelibur Tire Company's balance sheet consists of cash, marketable securities, accounts receivable, and inventories. The December 31, 2006, balance sheet revealed the following:

| | |
|----------------------|-------------|
| Inventories | \$ 540,000 |
| Total assets | \$2,800,000 |
| Current ratio | 2.25 |
| Acid-test ratio | 1.2 |
| Debt to equity ratio | 1.8 |

Required:

Determine the following 2006 balance sheet items:

1. Current assets
2. Shareholders' equity
3. Noncurrent assets
4. Long-term liabilities

E 3-5

Effect of management
decisions on ratios

• L14

Most decisions made by management impact the ratios analysts use to evaluate performance. Indicate (by plus) whether each of the actions listed below will immediately increase (I), decrease (D), or have no effect (NE) on the ratios shown. Assume each ratio is less than 1 if before the action is taken.

| Action | Current Ratio | Acid-Test Ratio | Debt to Equity Ratio |
|--|---------------|-----------------|----------------------|
| 1. Issuance of long-term bonds | | | |
| 2. Issuance of short-term notes | | | |
| 3. Payment of accounts payable | | | |
| 4. Purchase of inventory on account | | | |
| 5. Purchase of inventory for cash | | | |
| 6. Purchase of equipment with a 2-year note | | | |
| 7. Retirement of bonds | | | |
| 8. Sale of common stock | | | |
| 9. Write-off of obsolete inventory | | | |
| 10. Purchase of short-term investments for cash | | | |
| 11. Extension to refinancing on a long-term basis some currently maturing debt | | | |

E 3-16

Multiple choice, ratio
analysis

• D1, L14

The following questions dealing with ratios listed in are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statements or questions.

1. As December 31, 2006, Vide Co. had cash of \$200,000, a current ratio of 3.1 and a quick ratio of 3:1. On December 31, 2006, all cash was used to reduce accounts payable. How did these cash payments affect the ratios?

| | Current Ratio | Quick Ratio |
|--------------|---------------|-------------|
| a. Increased | Decreased | Decreased |
| b. Increased | Increased | Increased |
| c. Decreased | Increased | Increased |
| d. Decreased | Decreased | Increased |

2. In analyzing a company's financial statements, which financial statement would a potential investor primarily use to assess the company's liquidity and financial flexibility?

- a. Balance sheet
- b. Income statement
- c. Statement of retained earnings
- d. Statement of cash flows

1. 7
Multiple-choice CMA
exam disclosure and
accounting

1. 7
A 100,000

The following questions dealing with financial disclosures and the current ratio are adopted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation is conferred by the Institute of Management Accountants (www.imanet.org); provides candidates with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

The Financial Accounting Standards Board has provided guidance on disclosures of transactions between related parties, for example, transactions between subsidiaries of a common parent. SFAS 57 *Related Party Disclosures*, requires all of the following disclosures except:

- The nature of the relationship.
- A description of the transactions for each period so that the substance is presented.
- The dollar amounts of material items for each period in income statements is presented.
- The effect on the cash flow statement for each period in cash flow statement is presented.

The Management's Discussion and Analysis (MDA) section of an annual report:

- Includes the company president's letter.
- Covers three financial aspects of a firm's business: liquidity, capital resources, and results of operations.
- Is a technical analysis of past results and a defense of future results by management.
- Is an analytical and critical review.

Windburn Company has current assets of \$400,000 and current liabilities of \$300,000. Windburn Company is considering the following transactions:

- The purchase of \$100,000 of inventory on account.
- The payment of \$500,000 of accounts payable.
- The sale of \$100,000 of inventory on account.
- The receipt of a \$100,000 note receivable from a customer.

1. 8
Based on Appendix 3)
Segment reporting

1. 8

The Capron Corporation operates in four distinct business segments. The segments, along with 2006 dollar amounts in millions of dollars, are as follows:

| Segment | Revenues | Assets | Net Income |
|--------------------|----------|---------|------------|
| Pharmaceuticals | \$2,000 | \$1,000 | \$200 |
| Plastics | 3,000 | 1,500 | 100 |
| Food processing | 2,500 | 1,200 | 300 |
| Financial services | 500 | 250 | 50 |
| Total company | \$8,000 | \$4,000 | \$650 |

Required:

- For which segments must Capron report supplementary information according to SFAS No. 131?
- What amounts must be reported for the segments you identified in requirement 1?

PROBLEMS

An alternate exercise and problem set is available on the text website www.mhhe.com/supercap4e.

Presented below is a list of balance sheet accounts presented in alphabetical order.

Balance sheet
assignment

1. 8
Multiple-choice

| | |
|---|---------------------------------|
| Accounts payable | Inventory |
| Accounts receivable | Land in use |
| Accumulated depreciation—buildings | Long-term investments |
| Accumulated depreciation—equipment | Notes payable—due in 6 months |
| Allowance for uncollectible accounts | Notes receivable—due in 2 years |
| Bonds sinking fund | Patents |
| Bonds payable—due in 10 years | Preferred stock |
| Buildings | Prepaid expenses |
| Cash | Retained earnings |
| Common stock | Short-term investments |
| Copyrights | Taxes payable |
| Equipment | Wages payable |
| Interest receivable (due in three months) | |

Required:

Prepare a classified balance sheet grouping monetary amounts.

The Role of Accounting in an Information System

P 2-2
Balance sheet
preparation; identifying
elements

LO2 through LO4

The data listed below are taken from a December balance sheet of Amulshi Corporation. Some amounts, indicated by question marks, have been intentionally omitted.

| | \$ in 000s |
|--|------------|
| Cash and cash equivalents | \$ 239,166 |
| Short-term investments | 35,700 |
| Accounts receivable (net of allowance) | 534,944 |
| Inventories | ? |
| Prepaid expenses (current) | 83,750 |
| Total current assets | 1,594,227 |
| Long-term receivables | 10,000 |
| Property and equipment (net) | ? |
| Intangible assets | ? |
| Notes payable and short-term debt | 31,116 |
| Accounts payable | ? |
| Accrued liabilities | 42,772 |
| Other current liabilities | 8,624 |
| Total current liabilities | 694,504 |
| Long-term debt and deferred taxes | ? |
| Total liabilities | 706,328 |
| Shareholders' equity | 1,370,627 |

Required

- Determine the missing amounts.
- Prepare Amulshi's classified balance sheet.

P 2-3
Balance sheet
preparation

LO2 through LO4



The following is a December 31, 2006, post-closing trial balance for Airway Corporation.

| Account Title | Debit | Credit |
|------------------------------------|-----------|-----------|
| Cash | 48,000 | |
| Investments | 110,000 | |
| Accounts receivable | 80,000 | |
| Inventories | 200,000 | |
| Prepaid insurance | 0,000 | |
| Land | 90,000 | |
| Buildings | 420,000 | |
| Accumulated depreciation—buildings | | 100,000 |
| Equipment | 110,000 | |
| Accumulated depreciation—equipment | | 60,000 |
| Patents (net of amortization) | 10,000 | |
| Accounts payable | | 75,000 |
| Notes payable | | 130,000 |
| Interest payable | | 20,000 |
| Bonds payable | | 340,000 |
| Common stock | | 300,000 |
| Retained earnings | | 29,000 |
| Totals | 1,054,000 | 1,054,000 |

Additional information

- The investments account includes an investment in common stock of another corporation of \$10,000 which management intends to hold for at least three years. The balance of these investments are intended to be sold in the coming year.
- The land account includes land which cost \$25,000 that the company has not used and is currently listed for sale.
- The cash account includes \$15,000 set aside in a fund to pay bonds payable that mature in 2019 and \$25,000 set aside in a three-month Treasury bill.
- The notes payable account consists of the following:
 - a \$30,000 note due in six months
 - a \$50,000 note due in six years
 - a \$50,000 note due in five annual installments of \$10,000 each, with the first installment due February 15, 2007
- The \$60,000 balance in accounts receivable is net of an allowance for uncollectible accounts of \$5,000.
- The common stock account represents 30,000 shares of no-par value common stock issued and outstanding. The corporation has 40,000 shares authorized.

Required

Prepare a classified balance sheet for the Airway Corporation at December 31, 2006.

P 3-4

Balance sheet
preparation

B Of through L04

Excel

The following is a December 31, 2006, post-closing trial balance for the Welamuller Publishing Company.

| Account Title | Debits | Credits |
|--------------------------------------|------------------|------------------|
| Cash | 65,000 | |
| Accounts receivable | 160,000 | |
| Prepaid expenses | 285,000 | |
| Prepaid equipment | 148,000 | |
| Machinery and equipment | 320,000 | |
| Accumulated depreciation—equipment | | 110,000 |
| Accumulated depreciation—machinery | 40,000 | |
| Accounts payable | | 60,000 |
| Interest payable | | 20,000 |
| Unearned revenue | | 80,000 |
| Taxes payable | | 30,000 |
| Notes payable | | 200,000 |
| Allowance for uncollectible accounts | | 16,000 |
| Common stock | | 400,000 |
| Retained earnings | | 202,000 |
| Totals | 1,118,000 | 1,118,000 |

Additional information

Prepaid expenses include \$120,000 paid on December 31, 2006, for a two-year lease on the building that houses both the administrative offices and the manufacturing facility. Investments include \$30,000 in Treasury bills purchased on November 30, 2006. The bills mature on January 30, 2007. The remaining \$180,000 includes investments in marketable equity securities that the company intends to sell in the next year.

Unearned revenue represents customer prepayments for magazine subscriptions. Subscriptions are for periods of one year or less.

The notes payable account consists of the following:

- a. a \$40,000 note due in six months
- b. a \$100,000 note due in six months
- c. a \$60,000 note due in three equal installments of \$20,000 each, with the next installment due August 31, 2007.

The common stock account represents 400,000 shares of \$1.00 per share common stock issued and outstanding. The corporation has 800,000 shares authorized.

Required

Prepare a classified balance sheet for the Welamuller Publishing Company at December 31, 2006.

P 3-5

Balance sheet
preparation

B Of through L04

Excel

The following is a June 30, 2006, post-closing trial balance for Quapla Company.

| Account Title | Debits | Credits |
|------------------------------------|------------------|------------------|
| Cash | 87,000 | |
| Short-term investments | 65,000 | |
| Accounts receivable | 280,000 | |
| Prepaid expenses | 37,000 | |
| Land | 15,000 | |
| Buildings | 320,000 | |
| Accumulated depreciation—buildings | | 160,000 |
| Equipment | 265,000 | |
| Accumulated depreciation—equipment | | 120,000 |
| Accounts payable | | 173,000 |
| Accrued expenses | | 45,000 |
| Notes payable | | 100,000 |
| Mortgage payable | | 250,000 |
| Common stock | | 100,000 |
| Retained earnings | | 170,000 |
| Totals | 1,120,000 | 1,120,000 |

Additional information

The short-term investments account includes \$12,000 in U.S. treasury bills purchased in May. The bills mature in July.

- 126000000

Everyone is pleased with the balance sheet for the latest
period of June 30, 2016

The following balance sheet for the Hybrid Corporation was returned by the company:

HUBBARD CORPORATION
Balance Sheet
At December 31, 2006

| Assets | |
|---|---------------------|
| Buildings | 5,750,000 |
| Land | 250,000 |
| Cash | 60,000 |
| Accounts receivable (net) | 120,000 |
| Inventories | 240,000 |
| Marketable securities | 75,000 |
| Prepaid expenses | 10,000 |
| Investment in marketable equity securities | 60,000 |
| Total assets | \$ 6,465,000 |
| Liabilities & Shareholders' Equity | |
| Accounts payable | \$ 2,000,000 |
| Accumulated depreciation | 25,000 |
| Allowance for doubtful accounts | 50,000 |
| Deferred income taxes | 40,000 |
| Dividend stock, authorized and issued | 4,000,000 |
| Retained earnings | 390,000 |
| Total liabilities and shareholders' equity | \$ 6,465,000 |

Addition of methyl...

The fund's holdings are all U.S. stocks, and the fund's management is expected to continue to hold a diversified portfolio of U.S. stocks. The fund's management is expected to continue to hold a diversified portfolio of U.S. stocks.

Make also equity shares available to other circumstances and are included in a "pool" of which will be sold in the coming year, the remainder will be held indefinitely.

7. Notes payable are all long-term. However, a 10% (APR) note requires an installment payment of \$25,000 due in the coming year.

Powered

Prepare a corrected (classified) balance sheet for the Hybrid Corporation as December 31, 2010.

Parliament belongs to the tabular sheet for MKD no. 10 December 3, 2006.

| | | | |
|--------------------------------|--------------------|---|--------------------|
| Current assets | \$ 400,000 | Current liabilities | \$ 400,000 |
| Investments | 100,000 | Long-term liabilities | 0 |
| Property, plant, and equipment | 2,000,000 | Shareholders' equity | 1,500,000 |
| Intangible assets | 200,000 | | |
| Total assets | \$3,300,000 | Total liabilities and shareholders' equity | \$3,300,000 |

The company shows in the summarized balance sheet above include the following:

- Current assets: cash, \$150,000; accounts receivable, \$200,000; inventories, \$225,000; and prepaid insurance, \$25,000.
- Investments, investments in common stock, short term, \$20,000; and long term, \$160,000; and bond sinking fund, \$40.
- Property, plant, and equipment: buildings, \$1,500,000 less accumulated depreciation, \$400,000; equipment, \$400,000 less accumulated depreciation, \$200,000; and land, \$900,000.
- Liabilities: current liabilities, \$100,000; long-term liabilities, \$100,000; and other liabilities, \$100,000.
- Equity: common stock, \$1,000,000; retained earnings, \$1,000,000; and other equity, \$100,000.

Required:

Prepare a corrected classified balance sheet for HML Inc. at December 31, 2006.

Melody Lane Music Company was started by John Ross early in 2006. Initial capital was acquired by selling shares of common stock to various investors and by obtaining a bank loan. The company operates a retail store that sells musical instruments and musical equipment. Business was good during the first year of operation. The owner is considering opening a second store on the other side of town. The funds necessary for expansion will come from a new bank loan. In order to approve the loan, the bank requires financial statements.

In order to help the company to obtain a loan, the following information for the year ending December 31, 2006:

- Cash receipts, collection of the following:

| | |
|-------------------------------|-----------|
| From customers | \$360,000 |
| From issuance of common stock | 40,000 |
| From bank loan | 100,000 |

- Cash disbursements were as follows:

| | |
|-------------------------------------|-----------|
| Purchase of inventory | \$200,000 |
| Rent | 25,000 |
| Salaries | 10,000 |
| Utilities | 5,000 |
| Insurance | 3,000 |
| Purchase of equipment and furniture | 40,000 |

The bank loan was made on March 1, 2006. The loan was repaid by making payments of principal on March 31, 2007. The interest rate is 12%.

- The equipment and furniture were purchased on January 1, 2006, and have an estimated useful life of 5 years with an estimated salvage value. Depreciation per year is \$4,000.

- Inventory on hand at the end of the year was \$100,000.

Amounts owed at December 31, 2006, were as follows:

| | |
|---------------------------|----------|
| To suppliers of inventory | \$20,000 |
| To the bank company | 1,000 |

- Rent on the store building is \$25,000 per month. On December 1, 2006, four months' rent was paid in advance.

- Net income for the year was \$70,000. Assume that the company is not subject to federal, state, or local income tax.

Required:

Prepare a balance sheet at December 31, 2006.

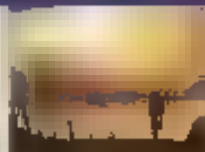
FIGURE 3-2

Balance sheet presentation

© 2008 through 2014

Excel

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your reasoning, analysis, judgment, and communication skills. You also will work with other students integrate what you've learned, apply it in real world situations, and consider its global and ethical implications. This practice will broaden your knowledge and further develop your decision-making abilities.

Conceptual exercise

Learning Objective 1
Current versus noncurrent classification

- LO1

Assignment exercise

Learning Objective 1
Current versus noncurrent classification

- LO1

Communication

Learning Objective 1
Inventory or property, plant, and equipment

- LO1, LO2

Judgment Case 3-4
Balance sheet, errors

- LO2 through LO5

A first-year accounting student is confused by a statement made in a recent class. Her instructor stated that the assets listed in the balance sheet of the HMM Corporation include computers that are classified as current assets as well as computers that are classified as noncurrent assets. In addition, the instructor stated that investments in marketable securities of other corporations would be classified in the balance sheet as either current or noncurrent assets.

Required:

Explain to the student the distinction between current and noncurrent assets pertaining to the HMM computer and the investments in marketable securities.

The usefulness of the balance sheet is enhanced when assets and liabilities are grouped according to common characteristics. The broad distinction made in the balance sheet is the current versus noncurrent classification of both assets and liabilities.

Required:

- Discuss the factors that determine whether an asset or liability should be classified as current or noncurrent in a balance sheet.
- Identify six items that under different circumstances could be classified as either current or noncurrent. Outline the factors that would determine the correct classification.

The Red Hen Company produces, processes, and sells fresh eggs. The company is in the process of preparing financial statements at the end of its first year of operations and has asked for your help in determining the appropriate treatment of the cost of its egg-laying flock. The estimated life of a laying hen is approximately two years, after which they are sold to soup companies.

The controller considers the company's operating cycle to be two years and wants to present the cost of the egg-producing flock as inventory in the current assets section of the balance sheet. He feels that the hens are "goods awaiting sale." The chief financial officer does not agree with this treatment. He thinks that the cost of the flock should be classified as property, plant, and equipment because the hens are used in the production of product—the eggs.

The focus of this case is the balance sheet presentation of the cost of the egg-producing flock. Your instructor will divide the class into two to six groups depending on the size of the class. The mission of your group is to reach consensus on the appropriate presentation.

Required:

- Each group member should deliberate the situation independently and draft a tentative argument prior to the class session for which the case is assigned.
- In class, each group will meet for 10 to 15 minutes in different areas of the classroom. During that meeting, group members will take turns sharing their suggestions for the purpose of arriving at a single group resolution.
- After the allotted time, a spokesperson for each group (selected during the group meeting) will share the group's solution with the class. The goal of the class is to incorporate the views of each group into a consensus approach to the situation.

You recently joined the internal auditing department of Marcus Clothing Corporation. As one of your first assignments, you are examining a balance sheet prepared by a staff accountant.

MARCUS CLOTHING CORPORATION
Balance Sheet
At December 31, 2006

| Assets | |
|--------------------------|--------------|
| Current assets | |
| Cash | \$ 37,000 |
| Accounts receivable, net | 80,000 |
| Notes receivable | 53,000 |
| Inventory | 240,000 |
| Prepaid expenses | 60,000 |
| Total current assets | 470,000 |
| Other assets | |
| Land | 5,000,000 |
| Equipment, net | 1,200,000 |
| Investment securities | 2,000 |
| Other | 77,000 |
| Total other assets | 6,279,000 |
| Total assets | \$ 6,749,000 |

| Liabilities and Shareholders' Equity | |
|--|-------------|
| Current liabilities | |
| Accounts payable | \$ 25,000 |
| Salaries payable | 32,000 |
| Total current liabilities | 57,000 |
| Long-term liabilities | |
| Notes payable | \$100,000 |
| Bonds payable | 300,000 |
| Mortgage payable | 25,000 |
| Total long-term liabilities | 425,000 |
| Shareholders' equity | |
| Common stock | 500,000 |
| Retained earnings | 65,000 |
| Total shareholders' equity | 565,000 |
| Total liabilities and shareholders' equity | \$1,145,000 |

at the end of your preparation you include the following information pertaining to the balance sheet:

1. The company rents its facilities. The land that appears in the statement is being held for future sale.
2. The note receivable is due in 2008. The balance of \$55,000 includes \$3,000 of accrued interest. The next interest payment is due in July 2007.
3. The note payable is due in installments of \$20,000 per year. Interest on both the notes and bonds is payable annually.
4. The company's investments consist of shareable equity securities of other corporations. Management does not intend to liquidate any investments in the coming year.

Required:

Identify and explain the deficiencies in the statement prepared by the company's accountant. Include in your answer notes that require additional disclosure, either on the face of the statement or in a note.

You recently joined the auditing staff of Ben, Ben, and Krug, CPAs. You have been assigned to the audit of Clearview, Inc., and have been asked by the audit senior to examine the balance sheet prepared by Clearview's accountant.

CLEARVIEW, INC.
Balance Sheet
As December 31, 2006
IS in millions

| Assets | |
|--|---------|
| Current assets | |
| Cash | \$ 12.4 |
| Accounts receivable | 2.1 |
| Inventory | 23.6 |
| Prepaid expenses | 5.5 |
| Total current assets | 43.6 |
| Investment | 2.0 |
| Property, plant, and equipment, net | 45.9 |
| Total assets | \$85.5 |
| Liabilities and Shareholders' Equity | |
| Current liabilities | |
| Accounts payable | \$ 83.7 |
| Accrued taxes and interest | 0.0 |
| Current maturities of long-term debt | 20.0 |
| Total current liabilities | 103.7 |
| Long-term liabilities | 425.0 |
| Shareholders' equity | |
| Common stock | \$100.0 |
| Retained earnings | 25.8 |
| Total shareholders' equity | 125.8 |
| Total liabilities and shareholders' equity | \$855.5 |

required:

Identify the items in the statements that most likely would require further disclosure either on the face of the statement or in a note. Further identify those items that would require disclosure as the significant accounting policies note.

Real World Case 3-6
Balance sheet and significant accounting policies disclosure

■ LO3 through LO5 O9

The balance sheet and disclosure of significant accounting policies taken from the 2004 annual report of International Business Machines Corporation (IBM) appear below. Use this information to answer the following questions.

What are the asset classifications provided in IBM's balance sheet?

2. What amounts did IBM report for the following items for 2004?

- Trade receivables
- Current assets
- Current liabilities
- Total shareholders' equity
- Retained earnings
- Liabilities

3. What is the par value of IBM's common stock? How many shares of common stock are authorized and issued as of the end of 2004?

4. Compute IBM's return ratio for 2004.

5. Identify the following items:

- The company's inventory valuation method.
- The company's depreciation method.
- The definition of cash equivalents.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION
INTERNATIONAL BUSINESS MACHINES CORPORATION
and Subsidiary Companies
in millions

| | | At December 31: | |
|--|-------|------------------|------------------|
| | Notes | 2004 | 2003 |
| Assets | | | |
| Current assets | | | |
| Cash and cash equivalents | | \$ 10,053 | \$ 7,790 |
| Marketable securities | 3 | 51 | 157 |
| Notes and accounts receivable—trade | | | |
| net of allowances of \$2 in 2004 and \$3 in 2003 | | 0,522 | 0,026 |
| Short-term financing receivables (net of allowances of \$60 in 2004 and \$1 in 2003) | F | 38 | 14 |
| Other accounts receivable (net of allowances of \$53 in 2004 and \$4 in 2003) | | 1,013 | 4 |
| Inventories | H | 3,336 | 2,942 |
| Deferred taxes | P | 2,219 | 44 |
| Prepaid expenses and other current assets | | 275 | 603 |
| Total current assets | | 45,978 | 44,667 |
| Plant, rental machines, and other property | G | 74,748 | 44,444 |
| Less accumulated depreciation | G | 2,111 | 2,364 |
| Plant, rental machines, and other property—net | G | 72,637 | 42,080 |
| Long-term financing receivables | F | 0,950 | 1,444 |
| Pension plan assets | W | 20,394 | 18,426 |
| Investments and sundry assets | H | 5,468 | 3,294 |
| Goodwill | I | 8,437 | 8,821 |
| Intangible assets—net | I | 789 | 1,724 |
| Total assets | | \$109,133 | \$104,657 |
| Liabilities and Stockholders' Equity | | | |
| Current liabilities | | | |
| Taxes | P | \$ 4,728 | \$ 5,479 |
| Short-term debt | K, L | 8,490 | 6,445 |
| Accounts payable | | 9,444 | 8,466 |
| Compensation and benefits | | 3,804 | 3,671 |
| Deferred income | | 7,173 | 6,492 |
| Other accrued expenses and liabilities | | 6,548 | 6,879 |
| Total current liabilities | | 39,798 | 37,629 |

| | | | |
|---|-------|------------|------------|
| Long-term debt | B & L | 18,828 | 16,986 |
| Retained and noncontrolling positions—ent | | | |
| Preferred obligations | W | 15,283 | 14,251 |
| Other liabilities | M | 5,977 | 7,733 |
| Total liabilities | | 79,438 | 76,597 |
| Contributions and commitments | C | | |
| Stockholders' equity | N | | |
| Common stock, par value \$.20 per share and | | | |
| and a no par stock | | 6,255 | 16,249 |
| Additional paid-in capital | | | |
| Retained earnings | | 14,525 | 37,825 |
| Treasury stock at par between 2004-2007: 894,530: | | | |
| 2005-2007 824,000 | | (81,070) | (84,034) |
| Accumulated gains and (losses) not affecting | | | |
| retained earnings | | (2,361) | 896 |
| Total stockholders' equity | | 24,747 | 27,864 |
| Total liabilities and stockholders' equity | | \$ 104,185 | \$ 104,461 |

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
INTERNATIONAL BUSINESS MACHINES CORPORATION
AND SUBSIDIARY COMPANIES

A. Significant accounting policies (in U.S. dollars)

The company recognizes revenue when realization is reasonably assured and earned. The company's revenue is recognized when it has more than a 50% chance of collecting the amount due. It has been suggested that the company's revenue recognition policy is too conservative. The company's revenue recognition policy is based on the collectability of the revenue. The company's revenue recognition policy is based on the collectability of the revenue. The company's revenue recognition policy is based on the collectability of the revenue.

Highly liquid investments with a maturity of three months or less at date of purchase are carried at fair value and considered to be cash equivalents. The company's revenue recognition policy is based on the collectability of the revenue. The company's revenue recognition policy is based on the collectability of the revenue.

Raw materials, work in process, and finished goods are stated at the lower of average cost or net realizable value. The company's revenue recognition policy is based on the collectability of the revenue. The company's revenue recognition policy is based on the collectability of the revenue.

Plants, rental machines and other property are carried at cost, and depreciated over their estimated useful lives using the straight-line method. The company's revenue recognition policy is based on the collectability of the revenue. The company's revenue recognition policy is based on the collectability of the revenue.

The fiscal year-end for the International Financial Corporation is December 31. The company's 2006 fiscal year statements were issued in March 2007. The following events occurred between December 31, 2006 and March 15, 2007:

- On January 22, 2007, the company negotiated a major merger with Hannon Industries. The merger will be completed by the middle of 2007.
- On February 3, 2007, Northwest negotiated a \$100 million long-term note with the Credit Bank of Ohio. The proceeds of the note is intended for the company's operations.
- On February 25, 2007, a flood destroyed one of the company's manufacturing plants causing \$100,000 of equipment damage.

Required:

Determine the appropriate treatment of each of these events in the 2006 financial statements of Northwest International Corporation.

Enron Corporation was a darling in the energy-provider arena and in January of 2001 its stock price rose above \$ 40 per share. A collapse of investor confidence in 2001 and revelations of accounting irregularities led to one of the largest bankruptcies in U.S. history. By the end of the year its stock price had plummeted to less than \$ 5 per share, irregularities and lawsuits followed. One problem was improper transactions with related parties that were not adequately disclosed in the company's financial statements. Critics stated that the lack of information about these transactions made it difficult for analysts following Enron to identify problems the company was experiencing.

Required:

- Consult the Summary of FASB pronouncements at www.fairview.org or locate the pronouncements from some other source. What substantive pronouncement requires the disclosure of related-party transactions? What did this requirement become effective?
- Describe the disclosures required for related-party transactions.

The Role of Accounting as an Information System

1. Use edgar.com.gov/cgi-bin/edgar or another website to locate the December 31, 2006, financial statements of Enron. Search for the related-party disclosure. Briefly describe the relationship set forth in the disclosure transactions described.
4. Why is it important that companies disclose related-party transactions? Use the Enron disclosure of the sale of dark fiber inventory in your answer.

Research Case 3-9

Disclosure of debt covenants

• LOS

Classifying a liability as short or long term provides useful cash flow information to financial statement users. Additional cash flow information is provided in a disclosure note that provides information about the payment dates, interest rates, collateral, and scheduled maturity amounts of long-term debt. Quite often, debt agreements contain certain covenants placed by the lender on the borrower in order to protect the lender's investment. Many of these covenants, called debt covenants, are based on accounting information. Professors Press and Weisbach in "Financial Statement Disclosure of Accounting-Based Debt Covenants"

discuss the disclosure of debt covenants in financial statements.

1. In your library or from some other source, locate the indicated article in *Accounting Horizons*, March 1999.

2. Describe the two types of accounting-based debt covenants—affirmative covenants and negative covenants—discussed by the authors.

3. What is the authors' conclusion about the adequacy of disclosure of accounting-based covenants in financial statements?

4. What is the authors' conclusion about the adequacy of disclosure of accounting-based covenants in financial statements?

1. In your library or from some other source, locate the indicated article in *Accounting Horizons*, March 1999.

• LOS

British Airways Plc is the largest international passenger airline in the world. The following is the Report of the Auditor accompanying the company's 2004 financial statements:

Independent Auditors' Report to the Members of British Airways Plc

We have audited the group's financial statements for the year ended March 31, 2004 which comprises the Consolidated Profit and Loss Account, Consolidated Balance Sheet, Company Balance Sheet, Consolidated Cash Flow Statement, Statement of Total Recognized Gains and Losses, Reconciliation of Movements in Shareholders' Funds, and the related notes 1 to 46. These financial statements have been prepared on the basis of the accounting policies set out therein.

Respective responsibilities of directors and auditors (in part)

The directors are responsible for preparing the annual report, including the financial statements which are required to be prepared in accordance with applicable United Kingdom law and accounting standards set out in the statement of directors' responsibilities in relation to the financial statements. Our responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements, United Kingdom Auditing Standards and the Listing Rules of the Financial Services Authority. We report to you our opinion as to whether the financial statements give a true and fair view and whether the financial statements have been properly prepared in accordance with the Companies Act.

Basis of audit opinion

We conducted our audit in accordance with United Kingdom Auditing Standards issued by the Auditing Practices Board. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgements made by the directors in the preparation of the financial statements and of whether the accounting policies are appropriate to the group's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to prepare our audit report. We believe that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion the financial statements give a true and fair view of the state of affairs of the company and of the Group at March 31, 2004 and of the profit of the group for the year then ended; and the financial statements have been properly prepared in accordance with the Companies Act of 1985.

Ernst & Young

Registered Auditor

and

May 17, 2004

Required:

Compare the auditor's report in the United Kingdom with that of the United States.

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, and forwarding of submissions by companies and others who are required by law to file forms with the SEC. All publicly traded domestic companies use EDGAR to make the majority of their filings with the SEC. The SEC makes this information available on the Internet.

1. In your library or from some other source, locate the indicated article in *Accounting Horizons*, March 1999.

• LOS

Analysis Case 3-14
Obtain and compare annual reports from companies in the same industry.

• LOS 10B, 10C

Highly characterizing the performance and financial condition of a company often comes from evaluating its financial data in comparison with other firms in the same industry.

Required

Obtain annual reports from three corporations in the same primary industry. Using techniques you learned in this chapter and any analysis you consider useful, respond to the following questions:

1. Are there differences in accounting methods that should be taken into account when making comparisons?
2. How do earnings trends compare in terms of both the direction and stability of income?
3. Which of the three firms has the greatest earnings relative to resources available?
4. Which corporation has made most effective use of financial leverage?
5. Of the three firms, which seems riskiest in terms of its ability to pay short-term obligations? Long-term obligations?

Note: You can obtain copies of annual reports from friends who are shareholders, from the investor relations department of the corporations, from a locally available or from EDGAR (Electronic Data Gathering, Analysis, and Retrieval) on the Internet (www.sec.gov) or through Edgarson at [philgibbs.com](http://www.philgibbs.com).

Analysis Case 3-15

Balance sheet information

• LOS 1 through 10B

FedEx Corporation

Refer to the financial statements and related disclosure notes of **FedEx Corporation** in Appendix B located at the back of this text.

Required

1. What categories does the company use to classify its assets? Its liabilities?
2. Why are "spare parts, supplies and fuel" shown as a current asset?
3. Explain the current liability "current portion of long-term debt."
4. What expense in the disclosure notes is it?
5. What method does the company use to depreciate its property and equipment?
6. Does the company report any subsequent events or related party transactions in its disclosure notes?

Lovers Co. operates in several distinct business segments. The company does not have any reportable foreign operations or major customers.

Required

1. What is the purpose of operating segment disclosures?
2. Define an operating segment.
3. List the accounts to be reported by operating segment.

Analysis Case 3-16
Based on Appendix 3J
Segment reporting analysis

• LOS

• **Scenario**
Based on Appendix 3J
Segment reporting

• LOS

You are in your third year as an accountant with McCarver-Lyon Industries, a multidivisional company involved in the manufacturing, distributing, and sales of surgical prosthetic devices. After the fiscal year-end, you are working with the controller of the firm to prepare supplemental business segment disclosures. Yesterday you presented her with the following summary information.

(\$ in millions)

| | Domestic | Union of South Africa | Egypt | France | Denmark | Total |
|----------------------|----------|-----------------------|-------|--------|---------|----------|
| Revenues | \$ 845 | 5 | \$365 | \$343 | \$3 | \$ 1,561 |
| Capital expenditures | 145 | 6 | 60 | 2 | 42 | 255 |
| Assets | 1,005 | | 290 | 38 | 205 | 1,538 |

After circulating to your office after lunch, you find the following memo:
Woe woe! Let's turn the data this way.

(\$ in millions)

| | Domestic | Africa | Europe | Total |
|----------------------|----------|--------|--------|----------|
| Revenues | \$845 | \$370 | \$343 | \$ 1,558 |
| Capital expenditures | 145 | 66 | 43 | 254 |
| Assets | 1,005 | 296 | 323 | 1,624 |

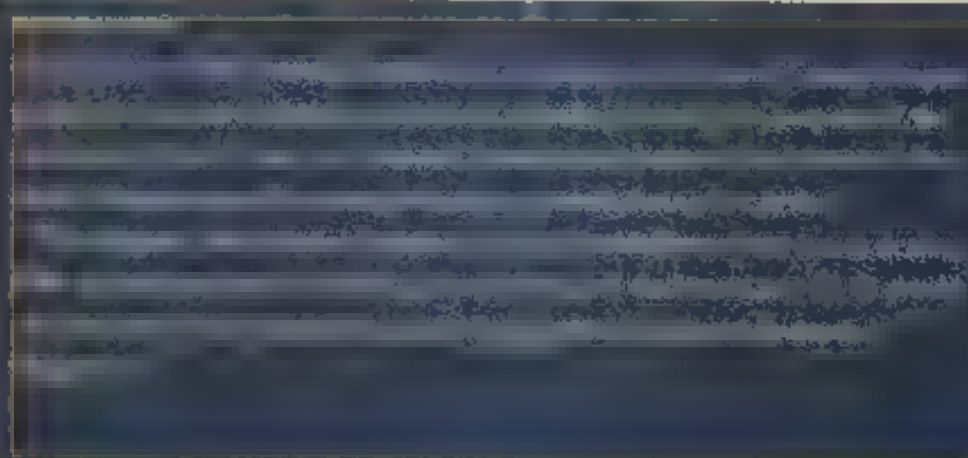
Some of our shareholders might find unfavorably to our recent focus on South African operations. Proceed.

Do you perceive an ethical dilemma? What would be the likely impact of following the controller's suggestion? Who would benefit? Who would be injured?

4

CHAPTER

The Income Statement and Statement of Cash Flows

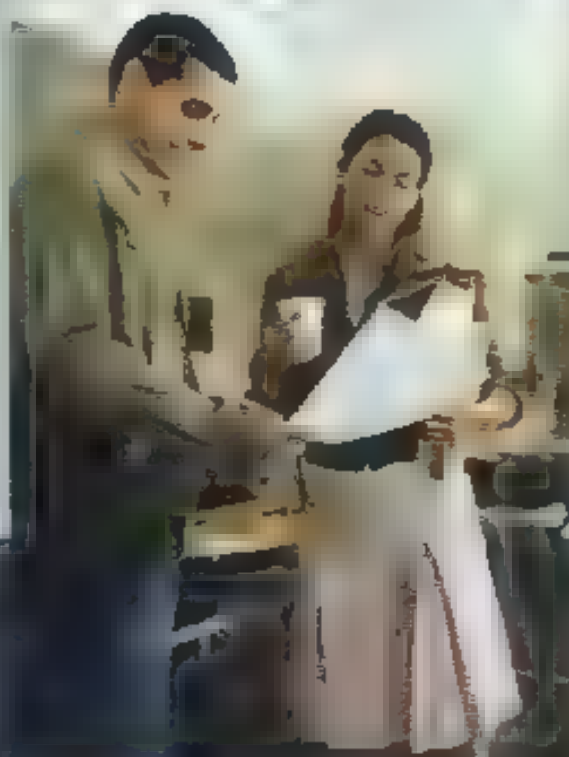


LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Explain the difference between net income and net comprehensive income and how we report components of the difference.
- LO2 Distinguish the difference between income from continuing operations and describe its components.
- LO3 Describe earnings quality and how it is impacted by management practices, is inappropriate earnings.
- LO4 Discuss the components of operating and nonoperating income and their relationship to earnings quality.
- LO5 Define what constitutes the continuing operations and presentational for income statement to be the appropriate income statement.
- LO6 Define an extraordinary item and describe the appropriate income statement presentation for these transactions.
- LO7 Describe the measurement and reporting requirements for a change in accounting principle.
- LO8 Explain the accounting treatments of changes in estimates or error of errors.
- LO9 Define earnings per share (EPS) and explain required components of EPS in certain income statement.
- LO10 Describe the purpose of the statement of cash flows.
- LO11 Identify and explain the various classifications of cash flows presented in a statement of cash flows.

FINANCIAL REPORTING CASE



Precision Castparts Corporation

Your friend, Becky Morgan, has just received a generous gift from her grandfather. Accompanying a written letter were 200 shares of stock of Precision Castparts Corporation, a worldwide manufacturer of complex metal components and products, along with the most recent financial statements of the company. Becky knows that you are an accounting major and pleads with you to explain some items in the company's income statement. "I remember studying the income statement in my introductory accounting course," says Becky. "But I am still confused. What is this item *discontinued operations*? And how about *restructuring costs*? These don't sound good. Are these something I should worry about?" You agree to try to help.

PRECISION CASTPARTS CORPORATION Income Statements Years Ended March 31 (in millions)

| | 2004 | 2003 | 2002 |
|---|----------------|----------------|----------------|
| Net sales | \$2,400 | \$2,400 | \$2,400 |
| Operating expenses | | | |
| Cost of goods sold | 1,100 | 1,100 | 1,100 |
| Selling and administrative | 114 | 114 | 114 |
| Restructuring costs | 2 | 0 | 0 |
| Other | 0 | 0 | 0 |
| Total operating costs and expenses | 1,216 | 1,214 | 1,214 |
| Operating income | 1,184 | 1,186 | 1,186 |
| Other income (expense) | | | |
| Interest expense | (43) | (40) | (40) |
| Interest | 0 | 0 | 0 |
| Income before taxes | 1,141 | 1,146 | 1,146 |
| Income tax expense | (115) | (115) | (115) |
| Income from continuing operations | 1,026 | 1,031 | 1,031 |
| Loss from discontinued operations, net of tax | 0 | 0 | 0 |
| Net income | <u>\$1,026</u> | <u>\$1,031</u> | <u>\$1,031</u> |

(in millions)

By the time you finish this chapter, you should be able to respond to the questions asked in the end-of-chapter exercises and a solution provided at the end of the chapter.

QUESTIONS

1. How would you explain cost of sales? (page 64)
2. In addition to the cost of sales, what are the other items reported separately on the income statement? (page 64)
3. What is the difference between a profit and a loss? (page 64)
4. What is the difference between a profit and a loss? (page 64)
5. What is the difference between a profit and a loss? (page 64)

The income statement displays a company's operating performance for a particular reporting period.

The income statement and its related items are reported separately on the income statement for a particular reporting period.

In Chapter 1, we discussed the critical role of financial accounting information in allocating resources within our economy. Ideally, resources should be allocated to private enterprises that will (1) provide the goods and services our society desires and (2) at the same time provide a fair rate of return to those who supply the resources. A company will be able to achieve these goals only if it can use the resources society provides to generate revenues from selling products and services that exceed the expenses necessary to provide those products and services (that is, generate a profit).

The purpose of the income statement, sometimes called the statement of operations or statement of earnings, is to summarize the profit-generating activities that occurred during a particular reporting period. Many investors and creditors perceive it as the statement most useful for predicting future profitability (future cash-generating ability).

The purpose of the statement of cash flows is to provide information about the cash receipts and cash disbursements of an enterprise that occurred during a period. In describing cash flows, the statement provides valuable information about the operating, investing, and financing activities that occurred during the period.

Unlike the balance sheet, which is a position statement, the income statement and the statement of cash flows are change statements. The income statement reports the changes in shareholders' equity (retained earnings) that occurred during the reporting period as a result of revenues, expenses, gains, and losses. The statement of cash flows also is a change statement, disclosing the events that caused cash to change during the period.

This chapter is divided into two parts. The first part describes the content and presentation of the income statement and related disclosure issues. The second part provides an overview of the statement of cash flows.

PART A THE INCOME STATEMENT AND COMPREHENSIVE INCOME

Before we discuss the specific components of an income statement in much depth, let's take a quick look at the general makeup of the statement. Graphic 4-1 offers a comprehensive statement for a hypothetical manufacturing company that you can refer to as we proceed through the chapter. At this point, our objective is only to gain a general perspective of the items reported and classifications contained in corporate income statements.

We'll look closer at the components of net income, but first we should consider the notion of net income itself and how it fits within the concept of comprehensive income.

Comprehensive Income

- **LO1** Accounting professionals have engaged in an ongoing debate concerning which transactions should be included as components of periodic income. For instance, some argue that certain changes in shareholders' equity besides those attributable to traditional net income should be

Income Statements

in millions of dollars per share

| | | Years Ended June 30 | |
|------------------------------------|--|---------------------|-----------|
| | | 2006 | 2005 |
| Operating | sales revenue | \$ 1,456.0 | \$1,380.4 |
| | cost of goods sold | 716.6 | 491.4 |
| | gross profit | 739.4 | 889.0 |
| | operating expenses: | | |
| | depreciation | 111.5 | 10.5 |
| | general and administrative | 3.8 | 32.9 |
| | research and development | 55.0 | 65.0 |
| | restructuring costs | 125.0 | |
| | intangible asset expenses | 45.3 | 74.6 |
| | goodwill impairment | 166.7 | 265.0 |
| Nonoperating | financial income, net of expense | | |
| | income tax expense | 12.4 | 11.1 |
| | net income | 25.9 | 124.8 |
| | net income | 16.7 | 2.0 |
| | income from continuing operations, net of income taxes and extraordinary item | 7.2 | 270.3 |
| | income tax expense | 40.0 | 90.6 |
| | income from continuing operations before income taxes | 11.2 | 75 |
| | Discontinued operations: | | |
| | income from operations of discontinued companies, including gain on disposition of \$4 | 7.6 | 45.7 |
| | income tax benefit | 0 | 13.7 |
| Net income | loss on discontinued operations | 15.6 | 30.4 |
| | income before extraordinary item | 05.7 | 14.1 |
| | extraordinary gain, net of \$ 7 in tax expense | | 22.0 |
| | Net income | \$ 2.7 | \$ 36.0 |
| Earnings per common share—basic | income from continuing operations, net of extraordinary item | 2.7 | 5.3 |
| | Discontinued operations | 1.1 | .6 |
| | Extraordinary gain | | .2 |
| | Net income | \$ 2.3 | \$ 6.1 |
| Earnings per common share—diluted: | income from continuing operations, net of extraordinary item | 5.2 | 5.3 |
| | Discontinued operations | 1.1 | .6 |
| | Extraordinary gain | | .2 |
| | Net income | \$ 2.5 | \$ 6.1 |

GRAPHIC 4-1

Income Statement

included in the determination of income. In what might be viewed as a compromise the FASB decided to maintain the traditional view of net income but to require companies also to report an expanded version of income called **comprehensive income** to include four types of gains and losses that traditionally haven't been included in income statements. Let's consider what that means.

OTHER COMPREHENSIVE INCOME

The calculation of net income omits certain types of gains and losses that are included in comprehensive income. As we saw in Chapter 3, you will see that certain investments are reported in the balance sheet at their fair values, but that the gains and losses resulting from adjusting these investments to fair value are *not* included in net income; instead they are reported as a separate component of shareholders' equity, **other comprehensive income** (loss).

Companies must report both net income and comprehensive income and reconcile the difference between the two. Be sure to remember that net income actually is a part of comprehensive income. The reconciliation simply extends net income to include other comprehensive income items, reported net of tax, as shown in Illustration 4-1.

ILLUSTRATION 4-1

Comprehensive Income

| | \$ in millions |
|---|----------------|
| Net income | \$600 |
| Other comprehensive income | |
| Net unrealized holding gains (losses) on investments (net of tax) ^a | \$ 10 |
| Gains (losses) from and amendments to pension and benefit plans (net of tax) ^b | 5 |
| Deferred gains (losses) from derivatives (net of tax) | 2 |
| Gains (losses) from foreign currency translation (net of tax) ^c | 1 |
| Comprehensive income | \$618 |

^a Change in net unrealized holding gains (losses) on investments (net of tax) is the change in the fair value of investments held for sale, measured at the end of the reporting period, less the change in the fair value of investments held for sale, measured at the beginning of the reporting period. ^b Change in net unrealized holding gains (losses) on investments (net of tax) is the change in the fair value of investments held for sale, measured at the end of the reporting period, less the change in the fair value of investments held for sale, measured at the beginning of the reporting period. ^c Change in net unrealized holding gains (losses) on investments (net of tax) is the change in the fair value of investments held for sale, measured at the end of the reporting period, less the change in the fair value of investments held for sale, measured at the beginning of the reporting period.

Comprehensive income includes net income as well as the following items:

- Net unrealized holding gains (losses) on investments (net of tax)
- Gains (losses) from and amendments to pension and benefit plans (net of tax)
- Deferred gains (losses) from derivatives (net of tax)
- Gains (losses) from foreign currency translation (net of tax)

The actual terminology used by companies for the four other comprehensive income items varies considerably. For instance, net unrecognized losses on pensions often are referred to as **minimum pension liability adjustments**, deferred gains (losses) from derivatives are sometimes called **derivative mark-to-market adjustments** or **changes in fair value of derivative**, and gains (losses) from foreign currency translation are often identified as **foreign currency translation adjustments**.

FLEXIBILITY IN REPORTING

The presentation shown in Illustration 4-1 can be (a) included as an extension to the income statement, (b) reported (exactly the same way) as a separate statement of comprehensive income, usually in part of a disclosure note, or (c) included in the statement of changes in shareholders' equity (Chapter 18). Each component of other comprehensive income can be displayed net of tax, as in Illustration 4-1, or alternatively before tax with one amount shown for the aggregate income tax expense (or benefit).¹ A recent survey of reporting practices of 600 large public companies indicates that, of those companies that had other comprehensive income items, 84% chose to include the presentation of comprehensive income in their statements of changes in shareholders' equity.²

¹ Reporting Comprehensive Income, *Statement of Financial Accounting Standards No. 130* (Norwalk, Conn.: FASB, 1997).

² The standard does not require the reporting of unrecognized currency gains and losses.

Source: Survey Data and Analysis, 2004, from *Survey of Accounting*, 10th ed., p. 107.

Many though, such as Nucor Industries, Inc. and Foster Wheeler Ltd., choose to present comprehensive income as an extension to their income statements. The FedEx Corporation statements of changes in stockholders' investment and comprehensive income in Appendix B located at the back of this text provides an example of a presentation of comprehensive income in that statement. On the other hand, in its 2006 financial statements, Shire Pharmaceuticals chose to use the separate statement approach, as shown in Exhibit 4-2.

FedEx Corporation

| SHIRE PHARMACEUTICALS GROUP | | | | |
|---|---------------|-------|---------|-------|
| Consolidated Statements of Comprehensive Income | | | | |
| (in millions of dollars) | | | | |
| | Quarter ended | 2006 | 2005 | 2004 |
| Net (loss) income | | | (578.4) | 236.3 |
| Other comprehensive income | | | | |
| Foreign currency translation | | 2.4 | 56.0 | 86.8 |
| Treasury stock loss (gain) on available-for-sale securities | | (1.4) | (1.0) | 2.1 |
| Realized gain on available-for-sale securities | | | (3.5) | (4.9) |
| Other comprehensive income (loss) | | | 51.1 | 84.0 |
| Comprehensive loss (income) | | 294.5 | (476.9) | 320.3 |

GRAPHIC 4-2
Comprehensive
Income Presented as a
Separate 5th element —
Shion Pharmaceuticals

ACCUMULATED OTHER COMPREHENSIVE INCOME

In addition to reporting comprehensive income that occurs in the current reporting period, we must also report these amounts on a cumulative basis in the balance sheet. This is consistent with the way we report net income that occurs in the current reporting period in the income statement and also report accumulated net income that hasn't been distributed as dividends in the balance sheet as retained earnings. Similarly, we report other comprehensive income as it occurs in the current reporting period and also report accumulated other comprehensive income (or loss) in the balance sheet. This is demonstrated in Exhibit 4-2A for Stone Pharmaceuticals.

The cumulative total of
 the apprehensions
 in 1974
 comprise between 10% and
 20% of the total
 apprehensions. The
 number of apprehensions
 in 1974 is approximately
 the same as the
 number of apprehensions
 in 1973.

| SHIRE PHARMACEUTICALS GROUP | | |
|---------------------------------------|--------|--------|
| Consolidated Balance Sheets (in part) | | |
| Years Ended December 31 | | |
| | 2006 | 2005 |
| On hand cash and equivalents | 87 | 41 |
| Due from related parties | 509 | 1,012 |
| Due from stockholders | 19,431 | 19,431 |
| Due from other parties | 40 | 10,000 |
| Retained earnings | 353 | 74 |
| Total shareholders' equity | 17,420 | 64,718 |

GRAPHIC 4-2A
Shareholders' Equity:
Share Pharmaceuticals

Referring to the numbers reported in Graphs 4-2, we can reconcile the changes in both equity earnings and accumulated other comprehensive income (loss):

Accumulated other comprehensive income increased by \$6.5 million, or to \$7.5 million, or \$62.5 million.

| (\$ in millions) | Retained Earnings | Accumulated Other Comprehensive Income (Loss) |
|----------------------------|-------------------|---|
| Balance, 12/31/05 | \$107.2 | \$71.5 |
| Add: Net income | 278.7 | |
| Deduct: Dividends | (32.4) | |
| Other comprehensive income | | 16.3 |
| Balance, 12/31/06 | <u>\$353.5</u> | <u>\$87.8</u> |

To further understand the relationship between net income and other comprehensive income, consider another example. Suppose Philips Corporation began 2006 with retained earnings of \$400 million and accumulated other comprehensive income of \$34 million. Let's also assume that net income for 2006, before considering the gains discussed below, is \$100 million, of which \$40 million was distributed to shareholders as dividends. Now assume that Philips purchased shares of IBM stock for \$90 million during the year and sold them at year-end for \$110 million. In that case, Philips would include the realized gain of \$10 million in determining net income. If the income tax rate is 40%, net income includes a \$6 million net-of-tax gain from the sale. This means that shareholders' equity, specifically retained earnings, also will include the \$6 million.

| (\$ in millions) | Retained Earnings | Accumulated Other Comprehensive Income |
|----------------------------|-------------------|--|
| Balance, 12/31/05 | \$400 | \$34 |
| Net income (\$100 + 6) | 106 | |
| Dividends | (40) | |
| Other comprehensive income | | 0 |
| Balance, 12/31/06 | <u>\$466</u> | <u>\$34</u> |

On the other hand, what if the shares are not sold before the end of the fiscal year but the year-end fair value is \$100 million? In this case, the unrealized gain of \$10 million is not included in net income. Instead, \$6 million net-of-tax gain is considered a component of *other comprehensive income* (loss) for 2006 and results in an increase to *accumulated other comprehensive income*, rather than retained earnings, in the 2006 balance sheet. The total of retained earnings and accumulated other comprehensive income is \$500 million either way, as demonstrated below.

| (\$ in millions) | Retained Earnings | Accumulated Other Comprehensive Income |
|----------------------------|-------------------|--|
| Balance, 12/31/05 | \$400 | \$34 |
| Net income | 100 | |
| Dividends | (40) | |
| Other comprehensive income | | 6 |
| Balance, 12/31/06 | <u>\$460</u> | <u>\$40</u> |

Net income and comprehensive income are identical for an enterprise that has no other comprehensive income items. Our focus in the remainder of this chapter is on the measurement and reporting of net income in an income statement. Components of other comprehensive income are described in subsequent chapters.

Income from Continuing Operations

- 102 The need to provide information to help analysts predict future cash flows emphasizes the importance of properly reporting the amount of income from the entity's continuing operations. Clearly, it is the operating transactions that probably will continue into the future that are the best predictors of future cash flows. The components of income from continuing

4. *Net income* are revenues, expenses (including income taxes), gains, and losses, excluding those related to discontinued operations and extraordinary items.⁴

REVENUES, EXPENSES, GAINS AND LOSSES

Revenues are inflows of resources resulting from providing goods or services to customers. For merchandising companies, like Wal-Mart, the main source of revenue is sales revenue. For service companies, like a hair salon, the main source of revenue is service revenue.

[illegible]

INCOME TAX EXPENSE

individuals, corporations are income-tax-paying entities.⁵ Because of the importance and size of the tax problem, the IRS often sends out letters to taxpayers, always beginning with a generic warning to generate income statements.

Federal, state, and nonfederal local taxes are assessed annually and usually are determined on a calendar year basis. The amount of the tax is based on the taxable income of the taxpayer. Taxable income may be determined by the taxpayer or by the taxing authority according to the regulations of the appropriate taxing authority.

But sometimes tax rules and GAAP differ with respect to when and even whether certain transactions should be recorded. When a tax rule and GAAP differ, an accounting clerk or tax preparer must determine the applicable treatment. A common example is when a corporation takes advantage of tax laws by legally deducting depreciation in the early years of an asset's life in its federal income tax return but not in its income statements. The amount of tax actually paid in the early years is less than would be the case if recording the expense in the early years and GAAP accounting were the same. This difference is often taken into account by companies in preparing their financial statements.

OPERATING, VERSUS NONOPERATING INCOME

Many corporate income statements distinguish between operating income and nonoperating income within continuing operations. Operating income includes revenues and expenses directly related to the principal revenue-generating activities of the company. For example, operating income for a manufacturing company includes sales revenues from the sale of products and all expenses related to this activity. Nonoperating income includes gains and losses on sold assets and expenses related to peripheral or incidental activities of the company. For example, income from investments, gains and losses from the sale of operating assets, income from investments, interest, and dividend revenue, and interest expense are included

Income from continuing operations includes the revenues, expenses, gains and losses that will probably continue in future periods.

7. 2. 7. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 8

[illegible][illegible]

In nonoperating income, *Other income (expense)*, often is listed in income statements as the classification heading for nonoperating items. A financial institution like a bank considers interest revenue and interest expense to be a part of operating income because they relate to the principal revenue-generating activities for that type of business.

Graphic 4-3 presents the 2004 and 2003 income statements for FedEx Corporation. Notice that FedEx distinguishes between operating and nonoperating income. Nonoperating revenues, expenses, gains and losses, and income tax expense (called provision for income taxes) are added to or subtracted from operating income to arrive at net income. As FedEx has no separately reported items, *Income from continuing operations equals net income.*⁷

GRAPHIC 4-3
Income Statements—
FedEx Corporation
FedEx Corporation

| Income Statements
(In millions, except per share amounts) | | |
|--|-------------------|-----------------|
| | Year Ended May 31 | |
| | 2004 | 2003 |
| Revenues | \$74,710 | \$72,687 |
| Operating expenses | | |
| Salaries and employee benefits | 10,728 | 9,778 |
| Purchased transportation | 2,407 | 2,155 |
| Rentals and landing fees | 1,918 | 1,803 |
| Depreciation and amortization | 1,375 | 1,351 |
| Fuel | 1,681 | 1,349 |
| Maintenance and repairs | 1,523 | 1,398 |
| Business realignment costs | 435 | |
| Other | 3,403 | 3,182 |
| | <u>23,270</u> | <u>21,016</u> |
| Operating income | 1,440 | 1,671 |
| Other income (expense): | | |
| Interest expense | (136) | (124) |
| Interest income | 20 | 6 |
| Other, net | (5) | (15) |
| | <u>(121)</u> | <u>(133)</u> |
| Income before income taxes | 1,319 | 1,538 |
| Provision for income taxes | <u>481</u> | <u>508</u> |
| Net income | <u>\$ 838</u> | <u>\$ 1,030</u> |
| Earnings per common share | | |
| Basic | \$2.80 | \$2.79 |
| Diluted | \$2.76 | \$2.74 |

Now let's consider the formats used to report the components of net income.

INCOME STATEMENT FORMATS

No specific standards dictate how income from continuing operations must be displayed, so companies have considerable latitude in how they present the components of income from continuing operations. This flexibility has resulted in a considerable variety of income statement presentations. However, we can identify two general approaches, the single-step and the multiple-step formats, that might be considered the two extremes, with the income statements of most companies falling somewhere in between.

The single-step format first lists all the revenues and gains included in income from continuing operations. Then, expenses and losses are grouped, subtracted, and subtracted—in a

A single-step income statement groups all revenues and gains together and all expenses and losses together.

⁷Even though these activities are nonoperating, they are still included in continuing operations because they generally are expected to continue in future periods.

In a few years the SEC will state that we report separately from continuing operations all nonrecurring operations and extraordinary items.

single step—from revenues and gains to derive income from continuing operations. Operating and nonoperating items are not separately classified. Illustration 4-2 shows an example of a single-step income statement for a hypothetical manufacturing company, Maxwell-Gear Corporation.

| MAXWELL GEAR CORPORATION | | |
|--------------------------------------|-----------|------------------|
| Income Statement | | |
| For the Year Ended December 31, 2006 | | |
| Revenues and gains: | | |
| Sales | | \$573,522 |
| Interest and dividends | | 38,400 |
| Gain on sale of operating assets | | 5,500 |
| Total revenues and gains | | 605,422 |
| Expenses and losses: | | |
| Cost of goods sold | \$302,371 | |
| Selling | 47,345 | |
| General and administrative | 24,888 | |
| Research and development | 16,300 | |
| Interest | 6,200 | |
| Loss on sale of investments | 8,322 | |
| Income taxes | 80,000 | |
| Total expenses and losses | | 485,422 |
| Net income | | <u>\$120,000</u> |

ILLUSTRATION 4-2
Single-Step Income Statement

The multiple-step format reports a series of intermediate subtotals such as gross profit, operating income, and income before taxes. The overview income statements presented in Graphic 4-1 and the FedEx Corporation income statements in Graphic 4-3 are variations of the multiple-step format. Illustration 4-3 presents a multiple-step income statement for the Maxwell-Gear Corporation.

A multiple-step income statement is one that reports a series of intermediate subtotals such as gross profit, operating income, and income before taxes.

| MAXWELL GEAR CORPORATION | | |
|--------------------------------------|----------|------------------|
| Income Statement | | |
| For the Year Ended December 31, 2006 | | |
| Sales revenue | | \$573,522 |
| Cost of goods sold | | 302,371 |
| Gross profit | | 271,151 |
| Operating expenses: | | |
| Selling | \$47,345 | |
| General and administrative | 24,888 | |
| Research and development | 16,300 | |
| Total operating expenses | | 88,529 |
| Operating income | | 182,622 |
| Other income or expenses: | | |
| Interest and dividend revenue | 24,400 | |
| Gain on sale of operating assets | 5,500 | |
| Interest expense | (6,200) | |
| Loss on sale of investments | (8,322) | |
| Total other income, net | | 15,378 |
| Income before income taxes | | 198,000 |
| Income tax expense | | 80,000 |
| Net income | | <u>\$118,000</u> |

ILLUSTRATION 4-3
Multiple-Step Income Statement

In addition to net income, the components of the income statement and their presentation also are important to financial statement analysis. An assessment of earnings quality.

An advantage of the single-step format is its simplicity. Revenues and expenses are not classified or prioritized. A primary advantage of the multiple-step format is that, by separately classifying operating and nonoperating items, it provides information that might be useful in analyzing trends. Similarly, the classification of expenses by function also provides useful information. For example, reporting gross profit for merchandising companies highlights the important relationship between sales revenue and cost of goods sold. It is important to note that this value is one of presentation. The bottom-line net income, is the same regardless of the format used. A recent survey of income statements of 600 large public companies indicates that the multiple-step format is used more than three times as often as the single-step format.⁶ We use the multiple-step format for illustrative purposes throughout the remainder of this chapter.

Before we investigate separately reported items, let's take a closer look at the components of both operating and nonoperating income and their relationship to earnings quality.

Earnings Quality

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Financial analysts are concerned with more than just the bottom line of the income statement—net income. The presentation of the components of net income and the related supplemental disclosures provide clues to the user of the statement in an assessment of earnings quality. Earnings quality is used as a framework for more in-depth discussions of operating and nonoperating income.

The term earnings quality refers to the ability of reported earnings (income) to predict a company's future earnings. After all, an income statement simply reports on events that already have occurred. The relevance of any historical-based financial statement hinges on its predictive value. To enhance predictive value, analysts try to separate a company's *transitory earnings* effects from its *permanent earnings*. Transitory earnings effects result from transactions or events that are not likely to occur again in the foreseeable future or that are likely to have a different impact on earnings in the future. Later in the chapter we address two items that, because of their transitory nature, are required to be reported separately at the bottom of the income statement. Analysts begin their assessment of permanent earnings with income before these two items, that is, income from continuing operations.

It would be a mistake, though, to assume income from continuing operations reflects permanent earnings entirely. In other words, there may be transitory earnings effects included in income from continuing operations. In a sense, the phrase *continuing* may be misleading.

MANIPULATING INCOME AND INCOME SMOOTHING

A *Fortune* magazine article "Hocus-Pocus: How IBM Grew 27% a Year" contained a subtitle: "Do you want to believe in the IBM miracle? Then don't look too closely at the numbers."¹⁰ The article is highly critical of IBM's earnings management practices that allowed the company to report earnings per share growth of 27% per year from 1994 through 1999 with only minimal growth in revenues. The article's author attributes the increase in earnings per share to share buybacks, the sale of assets, and gains on pension fund assets, not a growth in permanent earnings.

An often debated contention is that, within GAAP, managers have the power, to a limited degree, to manipulate reported company income. And the manipulation is not always in the direction of higher income. One author states that "Most executives prefer to report earnings that follow a smooth, regular, upward path. They hate to report declines, but they also want to avoid increases that vary wildly from year to year; it's better to have two years of 15% earnings

KEN SCHAPIRO—CONDOR CAPITAL MANAGEMENT

IBM has run out of easy things to do to generate earnings growth, hence they now will be handicapped."

⁶ "Survey of Income Statement Formats," *Journal of Accounting and Finance*, Vol. 10, No. 1, Spring 1999, pp. 10-11.

¹⁰ "Hocus-Pocus: How IBM Grew 27% a Year," *Fortune*, March 1999, pp. 100-101.

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What the problem of earnings management has done is that it has allowed a manager not to acknowledge of expenses that may be necessary to doing business and make a company that used to need to be called "underdog" a company that is more than a powerful financial player in the industry.

increases than a 30% gain one year and none the next. As a result, some companies "bank" earnings by under stating them in periodically good years and use the banking profits to polish results in bad years."

Many believe that manipulating income reduces earnings quality because it can mask permanent earnings. A recent *Business Week* issue was devoted entirely to the topic of earnings manipulation. The issue titled "Corporate Earnings: A Question of Trust" contains articles that are highly critical of corporate America's current manipulation practices. Arthur Levitt Jr. is the Chairman of the Securities and Exchange Commission, has been outspoken in his criticism of corporate earnings management practices and their effect on earnings quality. In an article appearing in the *CFA Journal*, he states,

Many believe that corporate earnings management practices reduce the quality of reported earnings.

In this regard, I am becoming convinced that the most serious threat to investor earnings expectations may be extending anticompetitive business practices. For many corporate managers, auditors, and analysts are participants in a game of heads and tails. In the end, to satisfy consensus earnings estimates and project a good earnings path, rational thinking may be winning the day over faithful representation. As a result, the fact we are witnessing is a erosion in the quality of earnings, and therefore, the quality of financial reporting. Managing may be giving way to manipulation; integrity may be taking on a blurring appearance.

How do managers manipulate income? Two major methods are (1) income shifting and (2) income statement classification. Income shifting is achieved by accelerating or delaying the recognition of revenues or expenses. For example, a practice called "channel stuffing" accelerates revenue recognition by persuading distributors to purchase more of your product than necessary near the end of a reporting period. The most common income statement classification manipulation involves the inclusion of recurring operating expenses in "special charge" categories such as restructuring costs (discussed below).¹⁴ This practice sometimes is referred to as "big bath" accounting: a reference to cleaning up company balance sheets and reducing, or the recurrence of liabilities. For these restructuring costs result in large reductions in income that might otherwise appear as normal operating expenses either in the current or future years.

Mr. Levitt would like to see various rule changes by standard setters to improve the transparency of financial statements. He does not want to eliminate necessary flexibility in financial reporting, but would like to make it easier for financial statement users to "see through the numbers" to the future. A key to a meaningful assessment of a company's future profitability is to understand the events reported in the income statement and their relationship with future earnings. Let's now revisit the components of operating income.

OPERATING INCOME AND EARNINGS QUALITY

Should all items of revenue and expense included in operating income be considered indicative of a company's permanent earnings? No, not necessarily. Sometimes, for example, operating expenses include some unusual items that may or may not continue in the future. Look closely at the 2004 and 2007 partial income statements of Citicorp Corporation, a supplier of application-focused communications networking equipment, software and services presented in Graphic 4-4. What items appear unusual? Certainly "Restructuring costs,"

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¹⁴ See, for example, Christopher Phillips, "How It's Done: Finance," *Time*, 1998, p. 31.

¹⁵ Arthur Levitt Jr., "The Numbers Game," *The CFA Journal*, December 1998, p. 11.

¹⁶ Ibid., 14.

¹⁷ See: Will, Stephen A. Brinkman, and E. B. Schipper, *Financial Statement Analysis*, Seventh Edition, 2004, McGraw-Hill.

¹⁸ Ibid., 241-242, 243-244.

"Goodwill impairment," "Long-lived asset impairment," and "In-process research and development" require further investigation. We discuss restructuring costs first.

GRAPHIC 4-4

Partial Income
Statements—Ciena
Corporation

| Income Statements (in part)
\$ in millions | | |
|---|-----------------------|-----------|
| | Year ended October 31 | |
| | 2004 | 2003 |
| Total revenue | \$ 198.7 ^a | \$ 187.16 |
| Cost of goods sold | 226.994 | 210.19 |
| Depreciation | 4.732 | 4.615 |
| Operating expense | | |
| Research and development | 198.440 | 94.639 |
| Selling and marketing | 108.257 | 103.153 |
| General and administrative | 70.925 | 55.755 |
| Amortization of intangible assets | 40.839 | 17.820 |
| In-process research and development | 30.200 | 28.0 |
| Restructuring costs | 5.10 | 73.515 |
| Goodwill impairment | 37.12 | |
| Long-lived asset impairment | 15.920 | 47.76 |
| Total operating expenses | 343.868 | 439.68 |
| Operating loss | 122.115 | 76.51 |

FINANCIAL REPORTING CASE

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Accounting is used to measure and report the results of business activities. This case study illustrates the accounting of restructuring costs.

Restructuring Costs. When a company reorganizes its operations to attain greater efficiency, it often incurs significant associated costs. Facility closings and related employee layoffs translate into costs incurred for severance pay and relocation costs. These restructuring costs appear regularly on corporate income statements. In fact, a recent survey reports that in 2003, of the 600 companies surveyed, 219 (37%), included restructuring costs in their income statements.¹⁰ For instance, let's consider our Ciena Corporation example. A disclosure note accompanying the company's financial statements indicates a 2004 closure of its San Jose, California, facility. Workforce reduction and lease termination costs were the primary expenses incurred. Graphic 4-5 reports a portion of the disclosure note related to the restructuring costs incurred during the fourth quarter of 2004.

GRAPHIC 4-5

Disclosure of
Restructuring Costs—
Ciena Corporation

Restructuring costs (in part)

During the fourth quarter of 2004, Ciena Corporation recorded a restructuring charge of \$5.4 million related to a workforce reduction of approximately 19 employees and \$25.6 million primarily related to the exiting of our San Jose, CA facility.

Prior to 2003

When a company restructured its operations, it estimated the future costs associated with the restructuring and expensed the costs up the period in which the decision to restructure was made. An offsetting liability was recorded. Later expenditures were charged against this liability as they occurred. The rationale for expensing now as an estimate of future expenditures was to match the restructuring costs with the decision to restructure and not with the period or periods in which the actual activities take place or when the benefits (if any) are realized.

Prior to 2003, when a company restructured its operations, it estimated the future costs associated with the restructuring and expensed the costs up the period in which the decision to restructure was made. An offsetting liability was recorded. Later expenditures were charged against this liability as they occurred. The rationale for expensing now as an estimate of future expenditures was to match the restructuring costs with the decision to restructure and not with the period or periods in which the actual activities take place or when the benefits (if any) are realized.

What if the estimates turned out to be incorrect?

¹⁰ A. Smith, *Restructuring in America* (New York: Wiley, 2004), p. 340.

Levi Strauss & Co., the famous jeans manufacturer, reported the following items as part of operating expenses in its 2000 and 1999 income statements (\$ in thousands):

| | 2000 | 1999 |
|---------------------|----------|----------|
| Restructuring costs | \$17,435 | \$45,277 |

Why the negative expense in 2000? A review of the company's disclosure note reveals that in 1998 and 1999 it recorded restructuring costs that included estimated employee-related expenses and estimated facilities expenses associated with a plan to reduce capacity. However, in 2000, Levi lowered its estimate of the total costs associated with the restructuring. Throughout the text, when an estimate is changed in a reporting period after the period the estimate was made, the company should record the effect of the change in the current period rather than restate prior years' financial statements to correct the estimate.

The appearance of restructuring costs in corporate income statements increased significantly in the 1980s and 1990s. Many U.S. companies reacted to increased competition by streamlining their operations. The popular term heard often is *downsizing*. The SEC became concerned about the frequency with which companies were accruing restructuring costs in the manner described above. One of the chief concerns was that some companies purposely expensed large costs currently in an effort to manipulate future income. For example, employee relocation costs incurred in conjunction with a restructuring truly produce future benefits to a company through greater operating efficiency. Fair accrual prior to any action may result in premature expense recognition of these costs.

The FASB responded to the SEC's concerns in June 2002 with *SFAS No. 146*, *The Statement of Financial Accounting Standards No. 146: Accounting for Costs Associated with Restructuring Activities*. The new standard requires that restructuring costs be recognized only when the costs actually have been incurred. As an example, suppose terminated employees are to receive termination benefits, but only after they remain with the employer beyond a minimum retention period. In that case, a liability for termination benefits, and corresponding expense, should be accrued in the period(s) the employees render their service. On the other hand, if future service beyond a minimum retention period is not required, the benefits are recognized at the time the company communicates the arrangement to employees. In either case, the liability and expense are recorded at the point they are deemed incurred. Similarly, costs associated with closing facilities and relocating employees are recognized when goods or services associated with those activities are received and not accrued at the company's option.

The Standard also establishes that fair value is the objective measurement of a liability, and that a company's fair value often will be measured by determining the present value of its future cash outflows. We discuss such present value calculations at length in later chapters, particularly in Chapters 6 and 14.

An important point to remember is that liabilities are not measured at fair value until the *Statement of Financial Concepts No. 6* and therefore are not compared for consistency with other liabilities. The new Standard also significantly reduces the possibility that restructuring costs can be used as a method to manipulate earnings.

Now that we understand the nature of restructuring costs, we can address the important question: Should

A new standard

The new standard requires that restructuring costs be recognized only when the costs actually have been incurred.

Fair value is the

objective measurement of a liability, and that a company's fair value often will be measured by determining the present value of its future cash outflows.

BUSINESSWIRE

With companies having to make more decisions about how to allocate their resources, the SEC has become more concerned about the frequency with which companies are recording restructuring costs. The SEC has issued a new standard, SFAS No. 146, which requires that restructuring costs be recognized only when the costs actually have been incurred. This new standard also establishes that fair value is the objective measurement of a liability, and that a company's fair value often will be measured by determining the present value of its future cash outflows. We discuss such present value calculations at length in later chapters, particularly in Chapters 6 and 14.

Source: Financial Accounting Standards Board, *Statement of Financial Accounting Standards No. 146* (Norwalk, Conn.: FASB, 2002).

¹Advising the Costs Associated with Plant or Equipment Activities. *Statement of Financial Accounting Standards No. 146* (Norwalk, Conn.: FASB, 2002).

Byron H. Wilson & Michael J. Dechow. "Managing Down: How Companies Come Up with the Numbers They Want." *Journal of Accounting and Finance*, 2002, 2(4), 10-15.

financial statement users consider these costs part of a company's permanent earnings stream, or are they *transitory in nature*? There is no easy answer. Ciena incurred restructuring costs in both 2003 and 2004. Will the company incur these costs again in the near future? Consider the following facts. During the 13-year period from 1991 through 2003, the Dow Jones Industrial 30 companies reported 43 restructuring charges in their collective income statements. That is an average of approximately 2.75 per company. But the average is deceiving. Six of the 30 companies reported no restructuring charges during that period. However, DuPont incurred restructuring charges in 10 of the 13 years, and Aicma reported restructuring charges in 9 of their 13 income statements. An analyst must interpret restructuring charges in light of a company's past history in this area. Information in disclosure notes describing the restructuring and management plans related to the business involved also can be helpful.

Two other expenses in Ciena's income statement for 2004 that warrant additional scrutiny are *goodwill impairment* and *long-lived asset impairment*. These terms involve what is referred to as *asset impairment losses or charges*. Any operational asset, whether tangible or intangible, should be written down if there has been a significant impairment of value. We explore operational assets in Chapters 10 and 11. After discussing this topic in more depth in those chapters, we revisit the concept of earnings quality as it relates to asset impairment. Also worthy of notice is the expense *in process research and development*. This controversial expense that results from certain business combinations is addressed in Chapter 10.

It is possible that financial analysts might look favorably at a company in the year it incurs a substantial restructuring charge or other unusual expense such as an asset impairment loss.¹ Perhaps so, if they view management as creating higher profits in future years through operating efficiencies. Would analysts then reward that company again in future years when those operating efficiencies materialize? Certainly, this double-halo effect might provide an attractive temptation to the management of some companies.

There are other operating expenses that also call into question this issue of earnings quality. For example, in Chapter 9 we discuss the write-down of inventory to comply with the lower-of-cost-or-market rule. Earnings quality also is influenced by the way income from investments is recorded (Chapter 12) and in the manner companies account for their pension plans (Chapter 17). In each case, after discussing these issues, we revisit this concept of earnings quality.

Earnings quality is affected by revenue issues as well as the expense issues we discussed. As an example, suppose that toward the end of its fiscal year, a company loses a major customer that can't be replaced. That would mean the current year's revenue figures contain a transitory component equal to the revenue generated from sales to that customer. Of course, in addition to its effect on revenues, losing the customer would have implications for the transitory/permanent nature of expenses and the bottom line net income. Also, the pressure on companies to meet their earnings numbers often has led to premature revenue recognition, reducing the quality of the current period's earnings. Accelerating revenue recognition has caused problems for many companies.

For example, Lucent Technologies' revenue recognition practices recently attracted the attention of the SEC. Nine current and former employees were charged with securities fraud for improperly recognizing sales of \$1.14 billion in fiscal 2000. The SEC accused the former employees of falsely inflating its revenues through aggressive sales practices, including the filing of false documents on sales to *Winstar Communications*, which later went bankrupt. The SEC also has pressed civil charges and a federal grand jury has indicated *McKesson*

ARTHUR LEVITT, JR.

After a long career as chief executive officer of the accounting firm Arthur Andersen and as a member of the SEC, Arthur Levitt, Jr. has written and lectured extensively on corporate governance and financial reporting. He is the author of *The Truth in Accounting*, a book that has become a classic in the field of accounting. He is also the author of *The Truth in Accounting: A Guide to Understanding the Numbers Behind the News*, a book that has become a classic in the field of accounting.

Corporation's former CEO for backdating a \$20 million software sale by one month to meet the quarterly earnings target.⁹

We save these issues for Chapter 5 in which we discuss revenue recognition in considerable depth. Now, though, let's discuss earnings quality issues related to *nonoperating* items.

NONOPERATING INCOME AND EARNINGS QUALITY

One of the purposes of accounting is to provide information about the ordinary operating performance of the company. Some "noise" is brought such as interest and gains or losses on investments. These are not as fundamental as the operating items. Some nonoperating items have generated considerable discussion with respect to earnings quality. Notably, gains and losses on investments, gains or losses on the sale of operational assets or from the sale of investments. For example, as the stock market boom reached its height late in the year 2000, many companies recorded large gains from sale of investments that had appreciated significantly in value. How should those gains be interpreted in terms of their relationship to future earnings? Are they transitory or permanent? Let's consider an example.

Intel Corporation is the world's largest manufacturer of semiconductors. Graphs 4-6 show the nonoperating section of Intel's income statements for the 2000 and 1999 fiscal years. In 2000, income before taxes increased by approximately 35% from the prior year. But notice that the *gains on investments, net* (net means net of losses) increased from \$883 million to over \$3.7 billion, accounting for a large portion of the increase in income. Some analysts questioned the quality of Intel's 2000 earnings because of these large gains.

Income Statements (in part)

Year Ended December 30

| | 2000 | 1999 |
|-----------------------------------|---------|---------|
| Income before income taxes | 10,440 | 7,700 |
| Provision for income taxes | (3,400) | (2,600) |
| Income after taxes | 7,040 | 5,100 |
| Other income (loss) | 1,100 | (100) |
| Income before extraordinary items | 8,140 | 5,000 |
| Extraordinary items, net of tax | (4,400) | (100) |
| Income from operations | 3,740 | 4,900 |

Intel's 2000 earnings were significantly higher than 1999 earnings. The increase in income before taxes was 35%. However, the increase in income after taxes was only 37%. The increase in income from operations was 22%.

GRAPHIC 4-6
Income Statements in part—Intel Corporation

Consider also Cisco Systems' 2001 earnings of \$8.66 billion. This figure included over \$1 billion in investment income, approximately half of which resulted from gains generated from the sale of securities. Can Cisco sustain these gains? Should they be considered part of permanent earnings or are they transitory? Coca-Cola Company has been criticized for manipulating its profits through the timely sale of bottling companies. The company often invests in weaker bottlers, enhances their operations, and then sells them for a profit. Are these gains an integral part of the soft-drink business or are they transitory blips in earnings? There are no easy answers to these questions.

Companies often voluntarily provide a pro forma earnings number when they announce a full-year earnings. These pro forma earnings are a management estimation of permanent earnings. For example, Hewlett-Packard Company, a leading global provider of computer peripherals and printers, in its report to shareholders for the year ended prior to 2001 was \$3.49 billion. The company also announced that its pro forma net income, which, in this case, excludes restructuring charges, amortization of intangibles, acquisition-related charges, and in-process research and development for the year was \$4.66 billion. These pro forma earnings numbers are controversial as they represent management's biased view of permanent earnings and should be interpreted in that light. Nevertheless, these disclosures do provide additional information to the financial community.

The Securities-Exchange Act addressed pro forma earnings in its Section 401. One of the act's important provisions requires that if pro forma earnings are included in any periodic or other

Many companies provide a pro forma earnings number when they announce a full-year earnings. These pro forma earnings are a management estimation of permanent earnings.

⁹Henry Swartz, "The Practice of Backdating Discovered," *Financial Executive*, July-August 2004.

the year.² The amount of income tax expense deducted from income from continuing operations is the amount of income tax expense that the company would have incurred if there were no extraordinary gain. The effect on income taxes caused by the extraordinary item is deducted from the extraordinary gain itself in the income statement. Illustration 4-4 demonstrates this concept.

The Maxwell Gear Corporation had income from continuing operations before income tax expense of \$200,000 and an extraordinary gain of \$60,000. The income tax rate is 40%. All items of income are lost. Therefore, the company's total income tax expense is \$104,000 ($200,000 \times 52\%$).

ILLUSTRATION 4-4
Intraperiod Tax Allocation

How should the company allocate the tax expense between income from continuing operations and the extraordinary gain? A partial income statement, beginning with income from continuing operations before income tax expense, ignoring intraperiod tax allocation, is shown in Illustration 4-4A.

| | |
|---|-----------|
| Income before income taxes and extraordinary item | \$200,000 |
| Income tax expense | 80,000 |
| Income before extraordinary item | \$120,000 |
| Extraordinary gain, gross | 60,000 |
| Net income | \$156,000 |

ILLUSTRATION 4-4A
Income Statement Presented Incorrectly—No Intraperiod Tax Allocation (extraordinary gain)

The deficiency of this presentation is that the apparent contribution to net income of (a) income before the extraordinary gain (that is, income from continuing operations) and (b) the extraordinary gain, is misleading. If the extraordinary gain had not occurred, income tax expense would not have been \$80,000 but rather \$80,000 ($40\% \times \$200,000$). Similarly, the net benefit of the extraordinary gain is not \$60,000, but rather \$36,000 ($\$60,000$ minus $40\% \times \$60,000$). The total tax expense of \$104,000 must be allocated: \$80,000 to continuing operations and \$24,000 ($40\% \times \$60,000$) to the extraordinary gain. The appropriate income statement presentation appears in Illustration 4-4B.

| | |
|---|-----------|
| Income before income taxes and extraordinary item | \$200,000 |
| Income tax expense | 80,000 |
| Income before extraordinary item | \$120,000 |
| Extraordinary gain, net of 40% tax expense | 36,000 |
| Net income | \$156,000 |

ILLUSTRATION 4-4B
Income Statement Presented Correctly—Intraperiod Tax Allocation (extraordinary gain)

Net income is \$156,000 either way. Intraperiod tax allocation is not an issue of measurement but an issue of presentation. The \$120,000 income before extraordinary gain properly reflects income from continuing operations including the appropriate tax effects. Also, note that income tax expense represents taxes that relate to the total of all of the revenue, expense, gain, and loss items included in continuing operations. Each of the items following continuing operations (discontinued operations and extraordinary items) are presented *net of their tax effect*. No items included in the computation of income from continuing operations are reported net of tax.

The two items reported net of tax are shown in Illustration 4-4C. The tax expense is the same as in Illustration 4-4B.

²The appropriate classifying general intent of extraordinary events is one of the issues of this chapter.

In the illustration, the extraordinary gain caused additional income tax expense to be incurred. While if the company had experienced an extraordinary loss of \$50,000 instead of an extraordinary gain of \$100,000, rather than creating additional tax, the loss actually decreases tax due by its reducing taxable income by \$50,000. The company's total income tax expense would be $\$50,000 \times 40\% = \$20,000$.

The extraordinary loss decreased the amount of tax the company otherwise would have had to pay by \$20,000. This is commonly referred to as a *tax benefit*. A partial income statement, beginning with income from continuing operations before income tax expense, ignoring intraperiod tax allocation is shown in Illustration 4-4C.

ILLUSTRATION 4-4C
Income Statement
Presented
Incorrectly—No
Intraperiod Tax
Allocation
Extraordinary loss

| | |
|---|------------------|
| Income before income taxes and extraordinary item | \$200,000 |
| Income tax expense | 80,000 |
| Income before extraordinary item | 44,000 |
| Extraordinary loss (gross) | 160,000 |
| Net income | <u>\$ 84,000</u> |

Once again, income before the extraordinary loss (that is, income from continuing operations) is misleading. If the extraordinary loss had not occurred, income tax expense would not have been \$80,000 but rather \$80,000 ($40\% \times \$200,000$). The total tax expense of \$80,000 must be allocated, \$80,000 tax expense to continuing operations and \$20,000 tax benefit to the extraordinary loss. The appropriate income statement presentation appears in Illustration 4-4D.

ILLUSTRATION 4-4D
Income Statement
Presented
Correctly—
Intraperiod Tax
Allocation
Extraordinary loss

| | |
|---|------------------|
| Income before income taxes and extraordinary item | \$200,000 |
| Income tax expense | 80,000 |
| Income before extraordinary item | 120,000 |
| Extraordinary loss, net of \$20,000 tax benefit | 140,000 |
| Net income | <u>\$ 80,000</u> |

Now that we have seen how to report items net of their related tax effects, let's look closer at the two items reported net of tax below: income from continuing operations and discontinued operations and extraordinary items.

DISCONTINUED OPERATIONS

Smithfield Foods, Inc., is the largest hog producer and pork processor in the world and the fifth largest beef producer in the United States. Prior to 2005, the company operated in four segments: pork, beef, hog production, and international. In 2004, through, Smithfield decided to discontinue the international segment and accordingly sold its foreign operations in meat and related products subsidiary located in Canada. The transaction is an example of a discontinued operation.

What Constitutes an Operation? In many years *APB Opinion No. 10¹* provides authoritative guidance for accounting and reporting of discontinued operations. This Opinion defines

¹The primary reason companies discontinue operations often is that the line of business is no longer profitable. This was the case with Smithfield's Canadian subsidiary sold in 2004 (this had never generating a profit).

¹⁰¹"Reporting Results of Operations," *Opinion of the Accounting Principles Board No. 30* (New York: AICPA, 1973).



SFAS No. 144

an operation of an entity
 that is a separate line of business
 or a separate major product line
 and whose operations are
 distinguishable from the rest of the entity

an operation as a "segment of a business." A segment could be either a separate line of business or a separable class of customer. SFAS No. 144 (issued in 2001) replaces the term segment of a business with *component of an entity*. A component of an entity comprises operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity.

If a component of an entity has either been disposed of or classified as held for sale, we report the results of its operations separately in discontinued operations if two conditions are met:

1. The operations and cash flows of the component have been (or will be) eliminated from the ongoing operations.
2. The entity will not have any significant continuing involvement in the operations of the component after the disposal transaction.

Notice that the definition of an operation is significantly broadened with SFAS No. 144. A component of an entity may be a reportable segment or operating segment, a reporting unit, a subsidiary, or an asset group. For example, suppose Chadwick Industries operates a chain of 12 restaurants in the Southeast and also has a division that engages in the production of canned goods sold to retailers. Previously, either the restaurant chain or the canned goods division would qualify as an operation for purposes of reporting discontinued operations, but an individual restaurant within the chain or a manufacturing plant in the canned goods division would not qualify. Now, though, under SFAS No. 144, it could if it represents a component of the company with "operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes," from the rest of the restaurants or plants.

Remember, too, that the second condition for being reported separately as a discontinued operation is that the entity will not have any significant continuing involvement in the operations of the component after the disposal transaction. As an example, let's say Scooter's Barbecue franchises restaurants to independent owners but also has several company-owned restaurants. If Scooter's commits to a plan to sell its company-owned restaurants to an existing owner, the way it reports the disposal will depend on the terms of the agreement.

If the agreement requires Scooter's to continue to provide significant continuing involvement in the operations of the restaurants after they are sold, Scooter's will not report the transaction as a discontinued operation. On the other hand, if no continuing involvement is indicated, Scooter's will report the transaction separately from its franchising operations as a discontinued operation. We will learn more about this in a moment.

Reporting Discontinued Operations. By definition, the income or loss stream from a identifiable discontinued operation no longer will continue. If Smithfield Foods had not separately reported the results of discontinuing its businesses, its 2004 and 2003 comparative income statements (in condensed form) would have appeared as in Illustration 4-5A.

The company generated net income of \$227.1 million and \$36.3 million in 2004 and 2003, respectively. However, an analyst concerned with Smithfield's future profitability is more interested in the 2004 and 2003 results after separating the effects of the discontinued operation from the results of operations that will continue. This information might have a significant impact on the analyst's assessment of future profitability.

Now let's compare these with the actual income statements Smithfield reported and reproduced (in condensed form) in Illustration 4-5B.

Compare the two income statements for their ability to predict future profitability. The income statements in Illustration 4-5B separately report the net-of-tax income effects of the discontinued operation. The 2004 revenues, expenses, gains, losses, and income tax related

SFAS No. 144 considers an operation to be a component of an entity whose operations and cash flows can be

clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity

or if

1. The operations and cash flows of the component have been (or will be) eliminated from the ongoing operations.

2. The entity will not have any significant continuing involvement in the operations of the component after the disposal transaction.

By definition, the income or loss stream from a identifiable discontinued operation no longer will continue.

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Now let's compare these with the actual income statements Smithfield reported and reproduced (in condensed form) in Illustration 4-5B.

Compare the two income statements for their ability to predict future profitability.

The income statements in Illustration 4-5B separately report the net-of-tax income effects of the discontinued operation.

The 2004 revenues, expenses, gains, losses, and income tax related

ILLUSTRATION 4-5A
Income Statements
Presented Incorrectly
without Separate
Reporting of
Discontinued
Operations

SMITHFIELD FOODS, INC.
Income Statements
Years Ended May 2

| | (\$ in millions) | |
|----------------------------|------------------|-----------|
| | 2004 | 2003 |
| Net sales | \$ 10,073 | \$7,904.5 |
| Costs and expenses | 7,605.3 | 7,865.3 |
| Income before income taxes | 2,467.7 | 39.2 |
| Income tax expense | 26.6 | 12.9 |
| Net income | \$ 2,221.1 | \$ 26.3 |

ILLUSTRATION 4-5B
Income Statements
Presented Correctly
with Separate
Reporting of
Discontinued
Operations

SMITHFIELD FOODS, INC.
Income Statements
Years Ended May 2

| | (\$ in millions) | |
|---|------------------|-----------|
| | 2004 | 2003 |
| Net sales | \$9,267 | \$7,135.4 |
| Costs and expenses | 7,120.2 | 7,139.9 |
| Income before income taxes | 2,468 | 6.5 |
| Income tax expense | 8.1 | 4.6 |
| Income from continuing operations | 1,627 | 1.9 |
| Income from discontinued operations: | | |
| Loss on sale of Canadian subsidiary | (15.4) | 14.8 |
| Gain on sale of Schneider, net of tax of \$21.0 | 49.0 | — |
| Net income | \$ 2,221.1 | \$ 26.3 |

to the discontinued operation have been removed from continuing operations and reported separately for both 2004 and 2003.¹¹ When we look at Illustration 4-5A, it would appear that the company's profitability increased \$200.8 million from \$26.3 million to \$227.1 million, and that its revenue increased by 28%, from \$7,904.5 million to \$10,073 million. However, a key in the assessment of profitability is the comparison of the company's performance from continuing operations. That comparison reveals an increase in revenue of 30% and an increase in profit of \$150.8 million (\$1.9 to \$162.7). This provides a different picture of Smithfield's future profitability.

Sometimes a discontinued component actually has been sold by the end of a reporting period as in the case of Smithfield. Often, though, the component is being held for sale but the disposal transaction has not been completed as of the end of the reporting period. We consider these two possibilities next.

When the component has been sold. When its reporting period ended in 2004, Smithfield had sold its Canadian subsidiary. In such situations, when the discontinued component is sold before the end of the reporting period, the reported income effects of a discontinued operation will include two elements:

¹¹ Under current practice, loss is continued in 2004, but in subsequent periods it is reported as a gain. In this case, the loss is reported as a gain in 2005. The illustration applies separate reporting of discontinued operations to the case where the component is sold before the end of the reporting period. In the case where the component is sold after the end of the reporting period, the loss is reported as a loss in 2004 and the gain is reported as a gain in 2005. The loss is reported as a loss in 2004 and the gain is reported as a gain in 2005.

1. Operating income or loss (revenues, expenses, gains and losses) of the component from the beginning of the reporting period to the disposal date.
2. Gain or loss on disposal.

These two elements can be combined or reported separately, net of their tax effects. Notice in Illustration 4-4B that Sunfield Foods chose to report the two elements separately. If combined, the gain or loss component must be indicated. In our discussions to follow, we combine the income effects. Illustration 4-5 describes a situation in which the discontinued component is sold before the end of the reporting period.

The Duluth Holding Company has several operating divisions. One of the divisions, which does not qualify as a separate entity, was sold in December 15, 2006. On that date, the assets of the division had a book value of \$2,000,000. Through disposal, the division reported a pretax operating income (exclusive of 40% nonrecurring items) of \$22,150,000 from its continuing operations.

Duluth's income statement for the year 2006, beginning with income from continuing operations, would be reported as follows:

| | |
|--|--------------|
| Income from continuing operations | \$22,150,000 |
| Discontinued operations | |
| Income from operations of discontinued component | \$2,000,000 |
| Loss on disposal of discontinued component | \$1,000,000 |
| Income from discontinued operations | \$1,000,000 |
| Income tax expense | (2,000,000) |
| Net income | \$21,150,000 |

Notice that a tax benefit occurs because a loss reduces taxable income, saving the company \$200,000. If the company had then been successful in operations of \$2,000,000, the additional income tax effect would have represented additional income tax expense.

The operating expenses, pretax operating income or loss of the discontinued component for any prior years included in the comparative income statements also are separately reported as discontinued operations.

When the component is considered held for sale. What if a company has decided to discontinue a component but, when the reporting period ends, the component has not yet been sold? If the situation indicates that the component is likely to be sold within a year, the component is considered held for sale. In that case, the income effects of the discontinued operations are reported, but the two components of the reported amount are modified as follows:

1. Operating income or loss (revenues, expenses, gains and losses) of the component from the beginning of the reporting period to the date the reporting period ends.
2. An "impairment loss" if the carrying value of the assets of the component is more than fair value minus cost to sell.

The balance sheet is affected, too. The assets of the component considered held for sale are reported at the lower of their carrying amount or book value or fair value minus cost to

ILLUSTRATION 4-6

Discontinued Operations—Gain on Disposal

In October 2006, management of Sunfield Foods, according to SFAS 144 selling, for \$4,000,000. For the period January 1 to October 31, 2006, the loss generated after an

When the component is considered held for sale, the company has decided to discontinue a component but, when the reporting period ends, the component has not yet been sold. If the situation indicates that the component is likely to be sold within a year, the component is considered held for sale. In that case, the income effects of the discontinued operations are reported, but the two components of the reported amount are modified as follows:

When a component is considered held for sale, the company has decided to discontinue a component but, when the reporting period ends, the component has not yet been sold. If the situation indicates that the component is likely to be sold within a year, the component is considered held for sale. In that case, the income effects of the discontinued operations are reported, but the two components of the reported amount are modified as follows:

sell. And, because it's not in use, an operational asset classified as held for sale is no longer reported as part of property, plant and equipment and is not depreciated or amortized.

The two lifetime elements can be combined or reported separately, net of their tax effects. In addition, if the amounts are combined, and there is an impairment loss, the loss must be disclosed, either parenthetically on the face of the statement or on a disclosure note. Consider the example in Illustration 4-7.

ILLUSTRATION 4-7 Discontinued Operations: Impairment Loss

The Duath Trucking Company has never decided to sell one of its divisions. In 2006, No. 44, on November 1, 2006, the unit has been sold. In that date, the assets of the value minus anticipated cost to sell, of \$ tax-operating loss of \$4,200,000. The or or loss Duath generated after tax profits Duath's income statement for 2006, it would be added as follows:

| | |
|--|---------------------|
| Income from continuing operations | \$22,350,000 |
| Discontinued operations | |
| Operating loss | (4,200,000) |
| Impairment loss | (12,000,000) |
| Income tax benefit | 4,800,000 |
| Loss on disposal of operating assets | (4,000,000) |
| Net income | \$10,950,000 |
| Tax expense of \$1,200,000 is based on the estimated tax liability of the discontinued operations. | |

A disclosure note would provide additional details about the discontinued component, including the identity of the component, the major classes of assets and liabilities of the component, the reason for the discontinuance, and the expected manner of disposition. Also, the pretax operating income or loss of the component being discontinued is also reported separate from continuing operations for any prior year that is presented for comparison purposes along with the 2006 income statement.

In the above illustration, if the fair value of the division's assets minus cost to sell exceeded the book value of \$12,000,000, there is no impairment loss and the income effects of the discontinued operations would include only the operating loss of \$4,200,000, less the income tax benefit.¹¹

Interim reporting. Remember that companies whose ownership shares are publicly traded in the United States must file quarterly reports with the Securities and Exchange Commission. If a component of an entity is considered held for sale at the end of a quarter, the income effects of the discontinued component must be separately reported in the quarterly income statement. These effects would include the operating income or loss for the quarter as well as an impairment loss, if the component's assets have a book value more than fair value minus cost to sell. If the assets are impaired and written down, any gain or loss on disposal in a subsequent quarter is determined relative to the new, written-down book value.

Let's now turn our attention to the second separately reported item: **extraordinary gains and losses**.

EXTRAORDINARY ITEMS

- Occasionally an unusual event may occur that materially affects the current year's income but is highly unlikely to occur again in the foreseeable future. If such an item is allowed to

¹¹In the illustration and throughout the book, we assume that the income tax expense is calculated based on the pretax loss. Reporting results for the subsequent period using estimated and recorded tax considerations in determining the income effects for the year the expense was incurred is not allowed. The tax expense is calculated based on the pretax loss.

simply alter net income without pointing out its extraordinary nature, earnings quality is seriously compromised and investors and creditors may be misled into having predictions of future income on current income that includes the nonrecurring event. For that reason, extraordinary items are "red flagged" in an income statement by being reported separately, as of this, and appropriately labeled. Extraordinary items are material events and transactions that are both

1. Unusual in nature
2. Infrequent in occurrence²⁴

These criteria must be considered in light of the environment in which the entity operates. There obviously is a considerable degree of subjectivity involved in the determination. The concepts of unusual and infrequent require judgment. In making these judgments, an accountant should keep in mind the overall objective of the income statement. The key question is how the event relates to a firm's future profitability. If it is judged that the event, because of its unusual nature and infrequency of occurrence, is not likely to occur again, separate reporting is warranted.

Companies often experience *unexpected* events that are not considered extraordinary items. The loss of a major customer or the death of the company president are unexpected events that likely will affect a company's future but are both normal risks of operating a business that could recur in the future. Other gains and losses from unexpected events that are not considered extraordinary include the effects of a strike (including those against competitors and major suppliers), and the adjustment of accruals on long-term contracts.²⁵

A key point in the definition of an extraordinary item is that determining whether an event satisfies both criteria depends on the environment in which the firm operates. The environment includes factors such as the type of products or services sold and the geographical location of the firm's operations. What is extraordinary for one firm may not be extraordinary for another firm. For example, a loss caused by a hurricane in Florida may not be judged to be extraordinary. However, hurricane damage in New York may indeed be unusual and infrequent.

Companies frequently sell subsidiary companies. Generally, the gain or loss is reported as a nonoperating item in the income statement or as a discontinued operation if the subsidiary

is considered a component of the entity according to SFAS No. 144. In contrast, though, consider the disclosure note from recent financial statements of El Paso Energy Corporation shown in Graphic 4-7.

2 Extraordinary Gain

El Paso Energy Corporation's first quarter financial results included a gain resulting from the sale of a subsidiary. The gain was reported as an extraordinary item. The gain was \$59 million, or 1.5% of net income.

Why was the gain reported as an extraordinary item? The company's reasoning is that the gain was unusual in nature and infrequent in occurrence. The company's reasoning is that the gain was unusual in nature and infrequent in occurrence. The company's reasoning is that the gain was unusual in nature and infrequent in occurrence.

Logic and reasoning must be applied in the determination of whether or not an event is extraordinary. Keep in mind that the income statement should be a guide to predicting the future. If it is extremely unlikely that a material gain or loss will occur again in the future, the quality of earnings is improved and the usefulness of the income statement in predicting the future is enhanced. The income statement should report extraordinary items separately.

²⁴ *Accounting Principles Based Solutions*, 10th ed., New York: McGraw-Hill, 1997, pp. 28-29.

Extraordinary Items

| Item | Amount |
|----------------------------|--------------|
| Gain on sale of subsidiary | \$59 million |
| Loss on sale of subsidiary | \$1 million |
| Gain on sale of subsidiary | \$58 million |

The Determination of

Whether an event is extraordinary depends on the environment in which the firm operates. The environment includes factors such as the type of products or services sold and the geographical location of the firm's operations.

Graphic 4-7

Extraordinary Gain Disclosure: El Paso Energy Corporation

An item shown previously on page 168, the net-of-tax effects of extraordinary gains and losses are presented in the income statement below discontinued operations. In addition, a disclosure note is necessary to describe the nature of the event and the tax effects, if they are not indicated on the face of the income statement.³⁶

UNUSUAL OR INFREQUENT ITEMS

If the income effect of an event is material and the event is either unusual or infrequent—but not both—the item should be included in continuing operations but reported as a separate

item in the income statement. For example, Chapter 4 discussed the

fact that a company's continuing operations are examples of this type of event. The events may be unusual or infrequent, but, by their nature, they could occur again in the foreseeable future. However, rather than include these items with other gains and losses or with other expenses, they are reported as a separate line item in the income statement.³⁷ This method of reporting, including note disclosure, enhances earnings quality by providing information to the statement user to help assess the events' relationship with future profitability.

As we discussed earlier, the cumulative effect of a change in accounting principle no longer is reported as a separate item in the income statement. A new standard requires that we retrospectively adjust prior financial statements instead. As a result, the income statement and other financial statements are affected by these changes differently than before. In the next section, we explore the way various types of accounting changes are reported.

Accounting Changes

Accounting changes fall into one of three categories: (1) a change in an accounting principle, (2) a change in estimate, or (3) a change in reporting entity. The correction of an error is another adjustment that is accounted for similarly. A brief overview of each is provided here. We cover accounting changes in detail in Chapter 20.

CHANGE IN ACCOUNTING PRINCIPLE

A change in accounting principle refers to a change from one acceptable accounting method to another. There are many situations in which there are alternative treatments for similar transactions. Common examples of these situations include the choice between FIFO, LIFO, and average cost for the measurement of inventory and among alternative revenue recognition methods.

Occasionally, a company will change from one generally accepted treatment to another. When this happens, the accounting principle is changed. This change affects the comparability of the company's financial information among reporting periods. If, for example, inventory and cost of goods sold are measured in one reporting period using LIFO and the FIFO method in a subsequent period, inventory, cost of goods sold, and hence, net income for the two periods are not comparable. The lack of comparability is alleviated by the way we report accounting changes.

There is more than one approach that could be used to account for a change in accounting principle. A new accounting standard requires that voluntary accounting changes be accounted for retrospectively.³⁸ Previously the cumulative effect on the income of prior years from having used the old method rather than the new method was included in the income statement of the year of change as a separately reported item. We no longer report the entire effect in the year of the change. Instead, we retrospectively recast prior years' financial statements when we report those statements again (in comparative statements, for example). For

³⁶For several years, the FASB required companies to report unusual gains and losses first in the early stages of the debt to equity

conversion. This requirement was later removed, and the requirement was replaced by the requirement that

the company report the net-of-tax effects of extraordinary gains and losses first in the early stages of the debt to equity

conversion. This requirement was later removed, and the requirement was replaced by the requirement that

the company report the net-of-tax effects of extraordinary gains and losses first in the early stages of the debt to equity

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conversion. This requirement was later removed, and the requirement was replaced by the requirement that

the company report the net-of-tax effects of extraordinary gains and losses first in the early stages of the debt to equity

conversion. This requirement was later removed, and the requirement was replaced by the requirement that

each year reported in the comparative statements, we revise the balance of each account affected. In other words, we make those statements appear as if the newly adopted accounting method had been applied all along. Then, a journal entry is created to adjust all account balances affected to what those amounts would have been. In addition, if retained earnings is one of the accounts whose balance requires adjustment, that adjustment is made to the beginning balance of retained earnings for the earliest period reported on the comparative statements of shareholders' equity.⁴⁰

Let's suppose that in 2006 the Dearborn Corporation switched from the LIFO inventory method to FIFO. Along with its 2006 statements, Dearborn presents two additional years of income statements and statements of shareholders' equity (2004 and 2005) as well as a 2003 balance sheet for comparative purposes. Here are the steps Dearborn would follow to account for the change:

1. The comparative financial statements are revised. For all three years—2004, 2005, and 2006—income statements will appear as if FIFO had been applied all along. Dearborn uses its new method, FIFO, to determine cost of goods sold, income tax expense, and net income in 2006 and recalculates the 2004 and 2005 numbers from LIFO to FIFO. Similarly, inventory and retained earnings in each year's balance sheet are reported using the newly adopted FIFO method. In its statements of shareholders' equity, Dearborn reports retained earnings each year as if it had used FIFO all along. Because 2004 is the earliest year reported, beginning retained earnings that year is revised to reflect the cumulative income effect of the difference in inventory methods for all years prior to 2004.
2. The appropriate accounts are adjusted. Dearborn will create a journal entry to adjust the book balances from their current LIFO amounts to what those balances would have been using FIFO. Since differences in cost of goods sold and income are reflected in retained earnings, as are the income tax effects, the journal entry updates these accounts.
3. A disclosure note provides additional information. Dearborn must provide clear justification that the change to FIFO is appropriate in a disclosure note. The note also indicates the effects of the change on items not reported on the face of the primary statements, as well as any prior balance amounts affected for the current period and all prior periods presented.

We will see these steps demonstrated in Chapter 9 in the context of our discussion of inventory methods. We'll revisit accounting changes in depth in Chapter 20.

CHANGE IN DEPRECIATION, AMORTIZATION, OR DEPLETION METHOD

A change in depreciation, amortization, or depletion method is considered to be a change in accounting estimate that is achieved by a change in accounting principle. We account for the change prospectively, exactly as we would any other change in estimate. We discuss the future-to-be approach in the next section.

CHANGE IN ACCOUNTING ESTIMATE

Estimates are a necessary aspect of accounting. A few of the more common accounting estimates are the amount of future bad debts on existing accounts receivable, the useful life and residual value of a depreciable asset, and future warranty expenses.

Because estimates require the prediction of future events, it's not unusual for them to turn out to be wrong. When an estimate is modified as new information comes to light, accounting for the change in estimate is quite straightforward. We do not revise prior years' financial statements to reflect the new estimate. Instead, we merely incorporate the new estimate in any related accounting determinations from that point on.⁴¹

Consider the example in Illustration 4-8.

⁴⁰ Because a lack of information makes it impracticable to report a change retrospectively as the new method is initially applied, prospectively, that is, we simply put the new method into use. Also, if a new standard specifically requires prospective accounting, the adjustment is deferred.

⁴¹ For example, if a company's estimate of the useful life of an asset is 10 years and the estimate is proved to be incorrect after 5 years, the company would depreciate the asset over the remaining 5 years.

Changes in depreciation, amortization, or depletion method are accounted for prospectively, exactly as we would any other change in estimate.

LO1

A change in accounting estimate is accounted for prospectively, that is, we simply put the new estimate into use. We do not revise prior years' financial statements to reflect the new estimate.

The Maxwell Paper Corporation uses the double-declining balance method to depreciate its equipment. In 2003, the corporation and the company's chief accountant, the DDB method is a straight-line depreciation method. The equipment was purchased at the beginning of 2004. Maxwell's cost of \$50 million and machinery had an expected useful life of 10 years.

When the corporation uses the company does not provide a depreciation expense for 2003. The corporation's financial statements for 2003 and 2004 are adjusted to reflect the depreciation expense for 2003. The adjustment is \$5 million.

Depreciation expense for 2003
is calculated as follows:

DDB depreciation

2003 \$20 (\$50 × 40%)

2004 2 (\$50 - 20) × 40%

Total

\$22 (\$20 + 2)

\$20 cost

2 Depreciation to date, DDB 2003-2004

\$22 Undepreciated cost as of 1/1/04

2 yrs Remaining life 15 years - 2 years

\$6 New annual depreciation

the DDB depreciation method is used in the industry. Depreciation for 2003 is based on the equipment's cost of \$50 million and its expected useful life of 10 years.

Depreciation expense for 2003 is calculated as follows. The depreciation expense for 2003 is \$20 million. The depreciation expense for 2004 is \$2 million. The total depreciation expense for 2003 and 2004 is \$22 million.

ILLUSTRATION 4-9

Change in Depreciation Method

are not generally required that combine the statements of the two companies as if they were a single reporting entity. The combined financial statements for A and B for 2006 would not be comparable to the financial statements of the separate companies for 2005.⁴²

A change in reporting entity is reported by restating all prior periods. Bank in Maine and the company's purchase of the new reporting entity is disclosed in the notes to the financial statements. It is not stated that the financial statements are presented in A and B have been combined in prior years. In addition, in the first financial statements issued after the change, a disclosure note is required that describes the nature of the change, the reason it occurred, and the effect of the change on net income, income before extraordinary items, and related per share amounts for all periods presented.

A change in reporting entity is reported by restating all prior periods. Bank in Maine and the company's purchase of the new reporting entity is disclosed in the notes to the financial statements. It is not stated that the financial statements are presented in A and B have been combined in prior years. In addition, in the first financial statements issued after the change, a disclosure note is required that describes the nature of the change, the reason it occurred, and the effect of the change on net income, income before extraordinary items, and related per share amounts for all periods presented.

Correction of Accounting Errors

Errors occur when transactions are either recorded incorrectly or not recorded at all. We briefly discuss the correction of errors here as an overview and in later chapters in the context of the effect of errors on specific chapter topics. In addition, Chapter 20 provides comprehensive coverage of the correction of errors.

Accountants employ various control mechanisms to ensure that transactions are recorded correctly. In spite of this, errors occur. When errors do occur, they can affect any one or several of the financial statement elements on any of the financial statements a company prepares. In fact, many kinds of errors simultaneously affect more than one financial element. When errors are discovered, they should be corrected.

Most errors are discovered in the same year that they are made. These errors are simple errors. The original erroneous journal entry is reversed and the appropriate entry is recorded. If an error is discovered in a year subsequent to the year the error is made, accounting

LO 1

42. The SEC requires that companies that change their reporting entity disclose the nature of the change, the reason it occurred, and the effect of the change on net income, income before extraordinary items, and related per share amounts for all periods presented.

treatment depends on whether or not the error is **material** with respect to its effect on the financial statements. In practice, the vast majority of errors are not material and are, therefore, simply corrected in the year discovered.

PRIOR PERIOD ADJUSTMENTS

After the financial statements are published and distributed to shareholders, Roush Distribution Company discovers an error in the statements. What does it do? *Material* errors discovered after the year the error is made are rare. The correction of these errors is considered to be a **prior period adjustment**.⁴² A prior period adjustment refers to an addition to or reduction of the beginning balance of retained earnings in a statement of shareholders' equity or statement of retained earnings if that's presented instead.

When it's discovered that the ending balance of retained earnings in the period prior to the discovery of an error was incorrect as a result of that error, the balance is corrected. However, simply reporting a corrected amount might cause misunderstanding for someone familiar with the company's prior financial statements. Reporting a prior period adjustment in the statement of shareholders' equity (or statement of retained earnings) avoids this confusion.

In addition to reporting the prior period adjustment to retained earnings, previous year's financial statements that are incorrect as a result of the error are retrospectively restated to reflect the correction. Also, a disclosure note communicates the impact of the error on income.

Earnings per Share Disclosures

LO 9

As we discussed in Chapter 3, financial statement users often use summary indicators, called *ratios*, to more efficiently make comparisons among different companies and over time for the same company. Besides highlighting important relationships among financial statement variables, ratios also accommodate differences in company size.

One of the most widely used ratios is **earnings per share (EPS)**, which shows the amount of income earned by a company expressed on a per share basis. Companies report both basic and diluted EPS. Basic EPS is computed by dividing income available to common shareholders (net income less preferred stock dividends) by the weighted average number of common shares outstanding over the period. Diluted EPS also takes into account that could occur for companies that have certain securities outstanding that are convertible into common shares or stock options that could create additional common shares if the options were exercised. These items could cause EPS to decrease (become diluted). Because of the complexity of the calculation and the importance of EPS to investors, we devote a substantial portion of Chapter 9 to this topic. At this point, we focus on the financial statement presentation of EPS.

All corporations whose common stock is publicly traded must report EPS on the face of the income statement. In Graphic 4-3 on page 180, **FedEx Corporation** discloses both basic and diluted EPS for the year ended July 31, 2017. EPS is also shown separately for each period presented.

When the income statement includes one or both of the separately reported items, per share amounts are reported separately for both income before these items and net income, as well as for both discontinued operations and extraordinary items. We see this demonstrated in recent income statements of **Noble International, LTD.**, a full-service provider of tailored laser welded blanks for the automotive industry, partially reproduced in Graphic 4-2.

As we discussed in Chapter 3, financial statement users often use summary indicators, called ratios, to more efficiently make comparisons among different companies and over time for the same company.

FedEx Corporation

Companies must disclose per share amounts for (1) income before any separately reported items, (2) each separately reported item, and (3) net income.

NOBLE INTERNATIONAL LTD.
Consolidated Statements of Income (in part)
For the Year Ended December 31

| | 2003 | 2002 |
|--|---------|---------|
| Operating revenues, net of discounts | \$4,300 | \$4,204 |
| Operating expenses, net of discounts | 846 | 823 |
| Income from operations | 3,454 | 3,381 |
| Extraordinary gains | — | 30 |
| Net income | \$3,454 | \$3,411 |
| Basic earnings (loss) per common share | \$0.71 | \$0.70 |
| Income from operations, net of discounts | 3,454 | 3,381 |
| Extraordinary gains | — | 30 |
| Net income | \$3,454 | \$3,411 |
| Extraordinary gains | — | 30 |
| Net income | \$3,454 | \$3,411 |

GRAPHIC 4-7

EPS Disclosures—
Noble International
LTD

PERSPECTIVE**The Income Statement**

There are significant differences from country to country in the presentation and content of the income statement as well as in the accounting methods used to measure income statement amounts. Many of the measurement differences are highlighted in the specific chapters that deal with the specific issues. For example, differences in inventory measurement methods, differences in the treatment of goodwill, and differences in the method used to value and depreciate property and equipment are but three of the areas where global practices differ widely.

There also are many differences in the presentation and content of the income statement. Here are just a few examples:

1. **The title of the statement.** For example, in the United Kingdom (U.K.), it's called the Group Profit and Loss Account.
2. **Revenue terminology.** In a number of countries (e.g., the U.K. and Denmark), sales revenue is referred to as turnover.
3. **The treatment of extraordinary gains and losses.** In some countries certain extraordinary gains and losses are not included in the income statement, but are shown as direct adjustments to shareholders' equity. In other countries, extraordinary gains and losses are shown in the income statement as their gross amounts, net of tax. In Korea, accounting principles specify certain circumstances that must be reported as extraordinary.
4. **The treatment of a change in accounting principle.** In some countries, a change in accounting principle is treated as an adjustment to retained earnings. Under IFRSs, changes in accounting principle are accounted for retrospectively, consistent with U.S. GAAP.

CONCEPT REVIEW EXERCISE

The upcoming Construction Company builds office buildings and also owns and operates a hotel complex throughout the Northwest. In September 2003, the company decided to complete its business for \$40 million. The sale was completed on December 31, 2003.

**INCOME
STATEMENT
PRESENTATION**

2006. Income statement information for 2006 is provided below for the two components of the company.

| | (\$ in millions) | |
|---|------------------------|-----------------|
| | Construction Component | Motel Component |
| Sales revenue | \$450.0 | \$200.0 |
| Operating expenses | 226.0 | 20.0 |
| Other income (loss) ^a | 16.0 | (30.0) |
| Income (loss) before income taxes | \$240.0 | \$140.0 |
| Income tax expense (benefit) ^b | 96.0 | 16.0 |
| Net income (loss) ^c | <u>\$144.0</u> | <u>\$124.0</u> |

^a Other income (loss) is the difference between the income before income taxes and the income after income taxes. ^b Income tax expense (benefit) is the difference between the income before income taxes and the net income (loss). ^c Net income (loss) is the difference between the income after income taxes and the income before income taxes.

In addition to the revenues and expenses of the construction and motel components, Lippincott experienced a before-tax loss of \$20 million in its construction business from damage to buildings and equipment caused by volcanic activity at Mount St. Helens. The event was considered unusual and infrequent.

Required:

Prepare a 2006 income statement for the principal Construction Company including EPS disclosures. There were 100 million shares of common stock outstanding throughout 2006. The company had no potential common shares outstanding.

SOLUTION

LIPPINCOTT CONSTRUCTION COMPANY
Income Statement
For the Year Ended December 31, 2006
(\$ in millions, except per share amounts)

| | |
|---|----------------|
| Sales revenue | \$450.0 |
| Operating expenses | <u>226.0</u> |
| Operating income | 224.0 |
| Other income | 16.0 |
| Income from continuing operations before income taxes and extraordinary item | 240.0 |
| Income tax expense | <u>96.0</u> |
| Income from continuing operations before extraordinary item | 144.0 |
| Discontinued operations: | |
| Loss from operations of discontinued motel component (including loss on disposal of \$30) | <u>\$(140)</u> |
| Income tax benefit | 16 |
| Loss on discontinued operations | <u>(24.0)</u> |
| Income before extraordinary item | 120.0 |
| Extraordinary loss from volcano damage, net of \$8.0 tax benefit | <u>(12.0)</u> |
| Net income | <u>\$108.0</u> |
| Earnings per share: | |
| Income from continuing operations before extraordinary item | \$ 1.44 |
| Discontinued operations | (1.24) |
| Extraordinary loss | <u>(1.12)</u> |
| Net income | <u>\$ 1.08</u> |

Now that we have discussed the presentation and content of the income statement, we turn our attention to the statement of cash flow:

THE STATEMENT OF CASH FLOWS

In addition to the income statement and the balance sheet, a statement of cash flows (SCF) is an essential component within the set of basic financial statements.²⁴ Specifically, when a balance sheet and an income statement are presented, a statement of cash flows is required for each income statement period. The purpose of the SCF is to provide information about the cash receipts and cash disbursements of an enterprise that occurred during a period. Similar to the income statement, it is a change statement, summarizing the transactions that caused cash to change during a reporting period. The term *cash* refers to cash plus cash equivalents, discussed in Chapter 3, for wide highly liquid, easily converted to cash, investments (such as Treasury bills). Chapter 5 is devoted exclusively to the SCF. A brief overview is provided here.

PART B

LO10

A statement of cash flows is required in each period for which financial statements are prepared.

Usefulness of the Statement of Cash Flows

We discussed the difference between cash and accrual accounting in Chapter 1. It was pointed out and illustrated that over short periods of time, operating cash flows may not be indicative of the company's long-run cash-generating ability, and that accrual-based net income provides a more accurate prediction of future operating cash flows. Nevertheless, information about cash flows from operating activities, when combined with information about cash flows from other activities, can provide information helpful in assessing share profitability, liquidity, and long-term solvency. After all, a company must pay its debts with cash, not with income.

Of particular importance is the amount of cash generated from operating activities. In the long run, a company must be able to generate positive cash flow from activities related to selling its product or service. These activities must provide the necessary cash to pay debts, provide dividends to shareholders, and provide for future growth.

Classifying Cash Flows

A list of cash flows is more meaningful to investors and creditors if they can determine the type of transaction that gave rise to each cash flow. Toward this end, the statement of cash flows classifies all transactions affecting cash into one of three categories: (1) operating activities, (2) investing activities, and (3) financing activities.

LO11



OPERATING ACTIVITIES

The inflows and outflows of cash that result from activities reported in the income statement are classified as cash flows from operating activities. In other words, this classification of cash flows includes the elements of net income reported on a cash basis rather than an accrual basis.²⁵

Cash inflows include cash received from:

1. Customers from the sale of goods or services
2. Interest and dividends from investments

These amounts may differ from sales and investment income reported in the income statement. For example, sales revenue measured on the accrual basis reflects revenue earned during the period, not necessarily the cash actually collected. Revenue will not equal cash collected from customers if receivables from customers or accounts receivable changed during the period.

Cash outflows include cash paid for:

1. The purchase of inventory
2. Salaries, wages, and other operating expenses
3. Interest on debt
4. Income taxes

Operating activities are inflows and outflows of cash related to the firm's operations and are reported as operating income.

²⁴ Under U.S. GAAP, a statement of cash flows is required for companies with total assets of \$10 million or more.

²⁵ Items related to gains and losses from the sale of assets during the period are reported as investing activities or financing activities.

²⁶ E

PERSPECTIVE

The Statement of Cash Flows

Many other countries also require either the presentation of a statement of cash flows or a similar statement based on funds flows (for example, working capital). The international trend, however, is moving toward the U.S. practice of requiring cash flow statements. IFRSs require a statement of cash flows.

Likewise, these amounts may differ from the corresponding accrual expenses reported in the income statement. Expenses are reported when incurred, not necessarily when cash is actually paid for those expenses. Also, some revenues and expenses, like depreciation expense, don't affect cash at all and aren't reported in the statement of cash flows.

The difference between the inflows and outflows is called *net cash flows from operating activities*. This is equivalent to net income if the income statement had been prepared on a cash basis rather than an accrual basis.

By the direct method, the cash effect of each operating activity is reported directly in the statement of cash flows.

By the indirect method, net cash flows from operating activities is derived indirectly by starting with reported net income and adding or subtracting items to convert that amount to a cash basis.

Direct and Indirect Methods of Reporting. Although generally accepted firms can be used to report operating activities, the direct method and the indirect method. Under the direct method, the cash effect of each operating activity is reported directly in the statement. For example, *cash received from customers* is reported as the cash effect of sales activities. Income statement transactions that have no cash flow effect, such as depreciation, are simply not reported.

By the indirect method, on the other hand, we arrive at net cash flow from operating activities indirectly by starting with reported net income and working backwards to convert that amount to a cash basis. Two types of adjustments to net income are needed. First, components of net income that do not affect cash are reversed. That means that noncash revenues and gains are subtracted, while noncash expenses and losses are added. For example, depreciation expense does not reduce cash, but it is subtracted in the income statement. To reverse this, then, we add back depreciation expense to net income to get back to the amount that we would have had if depreciation had not been subtracted.

Second, we make adjustments for changes in assets and liabilities during the period that indicate that amounts included as components of net income are not the same as cash flows for those components. For instance, suppose accounts receivable increases during the period because cash collected from customers is less than sales revenue. This increase in accounts receivable would then be subtracted from net income to arrive at *cash flow from operating activities*, as the indirect method positive adjustments to net income are made for decreases in related assets and increases in related liabilities, while negative adjustments are made for increases in those assets and decreases in those liabilities.

To contrast the direct and indirect methods further, consider the example in Illustration 4-36.

Direct Method. Let's begin with the direct method of presentation. We illustrated this method previously in Chapter 2. In that chapter, specific cash transactions were provided and we simply included them in the appropriate cash flow category in the SCF. Here, we start with account balances, so the direct method requires a bit more reasoning.

From the income statement, we see that ALC's net income has four components. Three of those—service revenue, administrative expenses, and income tax expense—affect cash flows, but not by the accrual amounts reported in the income statement. One component—depreciation—reduces net income but not cash. It is simply an allocation over time of a five-year's expenditure for a depreciable asset. So, to report these operating activities on a cash basis, rather than an accrual basis, we take the three items that affect cash and adjust the amounts to reflect cash inflow rather than revenue earned and cash outflows rather than expenses incurred. Let's start with service revenue.

Arlington Lawn Care (ALC) began operations at the beginning of 2006. ALC's 2006 income statement and its year-end balance sheet are shown below (\$ in thousands).

ARLINGTON LAWN CARE
Income Statement
For the Year Ended December 31, 2006

| | |
|----------------------------|------|
| Service revenue | \$90 |
| Operating expenses: | |
| Administrative | 932 |
| Depreciation | 8 |
| Total operating expenses | 40 |
| Income before income taxes | 50 |
| Income tax expense | 15 |
| Net income | \$35 |

ARLINGTON LAWN CARE
Balance Sheet
At December 31, 2006

| Assets | | Liabilities and Shareholders' Equity | |
|--------------------------------|-------|---|-------|
| Current assets: | | Current liabilities: | |
| Cash | \$ 63 | Accounts payable ^a | \$ 7 |
| Accounts receivable | 12 | Income taxes payable | 15 |
| Total current assets | 75 | Total current liabilities | 22 |
| Property, plant, and equipment | 4 | Shareholders' equity | |
| Less: Accumulated depreciation | (8) | Common stock | 50 |
| Net assets | \$ 67 | Retained earnings | 35 |
| | | Total liabilities and shareholders' equity | \$107 |

^a All other expenses

Service revenue is \$90,000, but ALC did not collect the cash from its customers. We know that because accounts receivable increased from 0 to \$12,000, so ALC must have collected no more than \$78,000 of the amount earned.

Similarly, administrative expenses of \$93,200 were incurred, but \$7,000 of that hasn't yet been paid because accounts payable increased by \$7,000. That means cash paid thus far for administrative expenses was only \$25,000. The other expense, income tax, was \$15,000, but that's an amount by which income taxes payable increased so no cash has yet been paid for income taxes.

We can report ALC's cash flows from operating activities using the direct method as shown in Illustration 4-10A.

ARLINGTON LAWN CARE
Statement of Cash Flows
For the Year Ended December 31, 2006

| | |
|--|-----------------|
| | \$ in thousands |
| Cash Flows from Operating Activities | |
| Cash received from customers ^a | \$78 |
| Cash paid for administrative expenses ^b | (25) |
| Net cash flows from operating activities | \$53 |

^a Service revenue of \$90,000 less increase in accounts receivable of \$12,000.
^b Administrative expenses of \$93,200 less increase in accounts payable of \$7,000.

ILLUSTRATION 4-10

Contrasting the Direct and Indirect Methods of Presenting Cash Flows from Operating Activities

Net income is \$35,000. To determine cash flows from operating activities, we adjust net income for changes in current assets and liabilities.

Changes in current assets and liabilities are used to adjust net income to determine cash flows from operating activities.

Accounts Receivable

Beginning Revenue \$90
Ending Revenue \$78
Cash

ILLUSTRATION 4-10A

Direct Method of Presenting Cash Flows from Operating Activities

By the direct method, we report cash flows from operating activities as follows:

Depreciation expense does not affect cash flows. It is accumulated in the income statement. So we add back depreciation expense to net income to eliminate its effect.

We make adjustments on the cash effects and indicate that either a change in operating assets or liabilities are not the same as cash flows.

ILLUSTRATION 4-10B

Indirect Method of Presenting Cash Flows from Operating Activities

By the indirect method, we start with net income, the work backward to derive the amount on a cash basis.

Investing activities involve the acquisition or disposal of long-term assets used in the business and investments in equity or debt securities.

Indirect Method. To report operating cash flows using the indirect method, we take a different approach. We start with ALC's net income but realize that the \$35,000 includes both cash and noncash components. We need to adjust net income, then, to eliminate the noncash effects so that we're left with only cash flows. We start by eliminating the only noncash component of net income in our illustration—depreciation expense. Depreciation of \$4,000 was subtracted in the income statement, so we simply add it back in to eliminate it.

This leaves us with the three components that do affect cash but not by the amounts reported. For those, we need to make adjustments to net income to cause it to reflect cash flows rather than accrual amounts. For instance, we saw earlier that only \$78,000 cash was received from customers, even though \$90,000 revenue is reflected in net income. That means we need to include an adjustment to reduce net income by \$12,000, the increase in accounts receivable. In a similar manner, we include adjustments for the changes in accounts payable and income taxes payable to the income statement as payments rather than expenses incurred. Because more was subtracted in the income statement for these two expenses than cash paid, we need to add back the differences—the increases in the liabilities. For these expenses, note that if these liabilities had decreased, we would have subtracted, rather than added, the changes.

Cash flows from operating activities using the indirect method are shown in Illustration 4-10B.

ARLINGTON LAWN CARE Statement of Cash Flows For the Year Ended December 31, 2006

| | | (\$ in thousands) | |
|---|------|-------------------|-------------|
| Cash Flows from Operating Activities | | | |
| Net income | | | \$35 |
| Adjustments for noncash effects | | | |
| Depreciation expense | \$ 8 | | |
| Increase in accounts receivable | (12) | | |
| Increase in accounts payable | 7 | | |
| Increase in income taxes payable | 15 | 18 | |
| Net cash flows from operating activities | | | \$53 |

Both the direct and the indirect methods produce the same net cash flows from operating activities; they are merely alternative approaches to reporting the cash flows. The FASB, in SFAS 95, stated its preference for the direct method. However, while both methods are used in practice, the indirect method is used much more frequently.

The choice of presentation method for cash flow from operating activities has no effect on how investing activities and financing activities are reported. We now look at how cash flows are classified into those two categories.

INVESTING ACTIVITIES

Cash flows from investing activities include inflows and outflows of cash related to the acquisition and disposition of long-term assets used in the operations of the business (such as property, plant, and equipment) and investment assets (except those classified as cash equivalents). The purchase and sale of inventories are not considered investing activities. Inventories are purchased for the purpose of being sold as part of the company's operations, so their purchase and sale are included with operating activities rather than investing activities.

Cash outflows from investing activities include cash paid for

1. The purchase of long-term assets used in the business.
2. The purchase of investment securities like stocks and bonds of other entities other than those classified as cash equivalents.
3. Loans to other entities.

Later, when the assets are disposed of, cash inflow from the sale of the assets (or collection of loans and notes) also is reported as cash flows from investing activities. As a result, cash inflows from these transactions are considered investing activities:

1. The sale of long-term assets used in the business.
2. The sale of investment securities (other than cash equivalents).
3. The collection of a receivable (excluding the collection of interest, which is an operating activity).

Net cash flows from investing activities represents the difference between the inflows and outflows. The only investing activity indicated in Illustration 4-8 is ALC's investment of \$40,000 cash for equipment.

FINANCING ACTIVITIES

Financing activities relate to the external financing of the company. Cash inflows occur when cash is borrowed from creditors or invested by owners. Cash outflows occur when cash is paid back to creditors or distributed to owners. The payment of interest to a creditor, however, is classed as an operating activity.

Cash inflows include cash received from:

1. Owners when shares are sold in them.
2. Creditors when cash is borrowed through notes, bank mortgages, and bonds.

Cash outflows include cash paid to:

1. Owners in the form of dividends or other contribution.
2. Owners for the reacquisition of shares previously sold.
3. Creditors as repayment of the principal amounts of debt (excluding trade payables that relate to operating activities).

Net cash flows from financing activities is the difference between the inflows and outflows. The only financing activity indicated in Illustration 4-10 is ALC's receipt of \$50,000 cash from issuing common stock.

NONCASH INVESTING AND FINANCING ACTIVITIES

As we just discussed, the statement of cash flows provides useful information about the investing and financing activities in which a company engages. Even though these primary events result in cash inflows and cash outflows, there may be significant investing and financing activities that are not cash flows at all. In order to provide complete information about these activities, the SCF shows any significant noncash investing and financing activities as separate noncash exchanges. For example, the acquisition of equipment (an investing activity) by issuing either a long-term note payable or equity securities (a financing activity). These noncash activities are reported either in a separate schedule or in a note.

An illustration of a statement of cash flows is provided in the following concept review exercise.

Net cash flows from investing activities represents the difference between the inflows and outflows. The only investing activity indicated in Illustration 4-8 is ALC's investment of \$40,000 cash for equipment.

Significant investing and financing activities that are not cash flows are reported.

CONCEPT REVIEW EXERCISE

Dubin Enterprises, Inc. (DEI) owns a chain of retail electronics stores located in shopping malls. The following are the company's 2006 income statement and comparative balance sheet. Fill in the blanks.

STATEMENT OF CASH FLOWS

Income Statement For the Year Ended December 31, 2006

| | |
|--------------------|---------|
| Revenue | \$2,000 |
| Cost of goods sold | 1,400 |
| Gross profit | 600 |

| | | |
|----------------------------|--------|---------------|
| Operating expenses: | | |
| Selling and administrative | \$ 355 | |
| Depreciation | 85 | |
| Total operating expenses | | 440 |
| Income before income taxes | | 260 |
| Income tax expense | | 78 |
| Net income | | <u>\$ 182</u> |

| Comparative Balance Sheets | 12/31/06 | 12/31/05 |
|---|-----------------|-----------------|
| Assets: | | |
| Cash | \$ 300 | \$ 220 |
| Accounts receivable (net) | 227 | 240 |
| Inventory | 160 | 120 |
| Property, plant & equipment | 960 | 800 |
| Less: Accumulated depreciation | (405) | (320) |
| Total assets | <u>\$1,242</u> | <u>\$1,060</u> |
| Liabilities and shareholders' equity | | |
| Accounts payable | \$ 45 | \$ 130 |
| Payables for selling and admin. expenses | 147 | 170 |
| Income taxes payable | 95 | 50 |
| Long-term debt | 40 | 100 |
| Common stock | 663 | 400 |
| Retained earnings | 392 | 210 |
| Total liabilities and shareholders' equity | <u>\$ 1,242</u> | <u>\$ 1,060</u> |

Required:

1. Prepare DE's 2006 statement of cash flows using the direct method.
2. Prepare the cash flows from operating activities section of DE's 2006 statement of cash flows using the indirect method.

Solution:

Prepare DE's 2006 statement of cash flows using the direct method.

DUBLIN ENTERPRISES, INC.
Statement of Cash Flows
For the Year Ended December 31, 2006
 (in millions)

| | | |
|---|---------|--------------|
| Cash Flows from Operating Activities | | |
| Collections from customers | \$2 13 | |
| Purchase of inventory ¹ | (1,425) | |
| Payment of selling and administrative expenses ² | (378) | |
| Payment of income taxes ³ | (33) | |
| Net cash flows from operating activities | | \$277 |
| Cash Flows from Investing Activities | | |
| Purchase of property, plant, and equipment | | (160) |
| Cash Flows from Financing Activities | | |
| Issuance of common stock | 83 | |
| Payment of long-term debt | (100) | |
| Net cash flows from financing activities | | (17) |
| Net increase in cash | | 180 |
| Cash, January 1 | | 220 |
| Cash, December 31 | | <u>\$400</u> |

¹ Sales revenue of \$2,130 million less \$1,425 million increase in accounts receivable (net) and \$1,425 million increase in inventory, plus \$40 million decrease in accounts payable.

² Selling & administrative expenses of \$378 million, plus \$33 million decrease in payable for selling & administrative expenses.

³ Income tax expense of \$78 million less \$45 million decrease in income taxes payable.

2. Prepare the cash flows from operating activities section of DED's 2006 statement of cash flows using the indirect method.

DUBLIN ENTERPRISES, INC.
Statement of Cash Flows
For the Year Ended December 31, 2006
 (\$ in millions)

| | |
|---|--------------|
| Cash Flows from Operating Activities | |
| Net income | \$152 |
| Adjustments for non-cash effects: | |
| Amortization expense | 55 |
| Decrease in accounts receivable (net) | 13 |
| Increase in inventory | (40) |
| Increase in accounts payable | 15 |
| Increase in income taxes payable | 45 |
| Decrease in payable for selling and administrative expenses | (23) |
| Net cash flows from operating activities | \$277 |

FINANCIAL REPORTING CASE SOLUTION



How would you explain restructuring costs to Becky? Are they necessarily a negative? (p. 164) Restructuring costs include employee severance and termination benefits plus other costs associated with the shutdown or relocation of facilities or downsizing of operations. It's not necessarily bad. In fact, the objective is to make operations more efficient. The costs are incurred now in hopes of better earnings later. Prior to 2003, when a company restructured its operations, it estimated the future costs associated with the restructuring and expensed the costs in the period in which the decision to restructure was made. An offsetting liability was recorded. Later expenditures were charged against this liability as they occurred.

2. In addition to discontinued operations, what other events sometimes are reported separately in the income statement that you might tell Becky about? Why are these items reported separately? (p. 163) In addition to discontinued operations, extraordinary items also are reported separately in the income statement when they are present. The predictive ability of an income statement is significantly enhanced if normal and recurrent transactions are separated from unusual and nonrecurrent items. The income statement is a historical report, summarizing the most recent profit-generating activities of a company. The information in the statement is useful if it can help users predict the future. Toward this end, users should be made aware of events reported in the income statement that are not likely to occur again in the foreseeable future.
3. Explain to Becky what is meant by discontinued operations and describe to her how one is reported in an income statement. (p. 170) A discontinued operation occurs when a company decides to discontinue a separate component. A component of an entity comprises operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity. The net-of-tax effect of discontinued operations is separately reported below income from continuing operations. If the component has been disposed of by the end of the reporting period, the income effects include (1) income or loss from operations of the discontinued component from the beginning of the reporting period through the disposal date and (2) gain or loss on disposal of the component's assets. If the component has not been disposed of by the end of the reporting period, the income effects include (1) income or loss from operations of the discontinued component from the beginning of the reporting period through the end of the reporting period, and (2) an impairment loss if the fair value minus cost to sell of the component's assets is less than their carrying amount (book value). ■

THE BOTTOM LINE

1. The FASB's Concept Statement 6 defines the term *comprehensive income* as the change in equity from nonowner transactions. The calculation of net income, however, excludes certain transactions that are included in comprehensive income. To convey the relationship between the two measures, companies must report both net income and comprehensive income and reconcile the difference between the two. The presentation can be (a) included as an extension to the income statement, (b) reported exactly the same way, as a separate statement of comprehensive income, or (c) included in the statement of changes in shareholders' equity.
2. The components of income from continuing operations are revenues, expenses (including income taxes), gains, and losses, excluding those related to discontinued operations and extraordinary items. Companies often distinguish between operating and nonoperating income within continuing operations.
3. The term *earnings quality* refers to the ability of reported earnings (income) to predict a company's future earnings. The relevance of any historical-based financial statement hinges on its predictive value. To enhance predictive value, analysts try to separate a company's *transitory earnings* effects from its *permanent earnings*. Many believe that manipulating income reduces earnings quality because (1) it masks permanent earnings. Two major methods used by managers to manipulate earnings are (a) income shifting and (2) income statement classification.
4. Analysts begin their assessment of permanent earnings with income from continuing operations. It would be a mistake to assume income from continuing operations reflects permanent earnings entirely. In other words, there may be transitory earnings effects included in both operating and nonoperating income.
5. A discontinued operation refers to the disposal or a planned disposal of a component of the entity. A component of an entity comprises operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the company. The net-of-tax effects of discontinued operations are separately reported below income from continuing operations.
6. Extraordinary items are material gains and losses that are both unusual in nature and infrequent in occurrence. The net-of-tax effects of extraordinary items are presented in the income statement below discontinued operations, if any.
7. Most voluntary changes in accounting principles are reported retrospectively. This means revising all previous periods' financial statements to appear as if the newly adopted accounting method had been applied all along. Some changes are reported prospectively. These include (a) changes in the method of depreciation, amortization, or depletion, (b) some changes in principle for which retrospective application is impracticable, and (c) a few changes for which an authoritative pronouncement requires prospective application.
8. A change in accounting estimate is treated currently and prospectively, rather than by restating prior years' financial statements to correct the estimate. In other words, the new estimate merely is used from that point on. Most errors are discovered in the same year that they are made. These errors are simple to correct. However, material errors discovered in a year subsequent to the year the error was made are considered prior period adjustments. The correction of the error is accounted for by restating prior years' financial statements, causing an adjustment to beginning-of-period retained earnings.
9. Earnings per share (EPS) is the amount of income achieved during a period expressed per share of common stock outstanding. The EPS must be disclosed for income from continuing operations and for each item below continuing operations.
10. When a company provides a set of financial statements that reports both financial position and results of operations, a statement of cash flows is reported for each period for which results of operations are provided. The purpose of the statement is to provide information about the cash receipts and cash disbursements that occurred during the period.
11. To enhance the usefulness of the information, the statement of cash flows classifies all transactions affecting cash into one of three categories: (1) operating activities, (2) investing activities, or (3) financing activities. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 4-1 The income statement is a change statement. Explain what is meant by this.
- Q 4-2 Define comprehensive income. What are the three ways companies can present the reconciliation between net income and comprehensive income?
- Q 4-3 What transactions are included in income from continuing operations? Briefly explain why it is important to segregate income from continuing operations from other transactions affecting net income.
- Q 4-4 Distinguish between operating and nonoperating activities as reflected in the income statement.
- Q 4-5 Briefly explain the difference between the single-step and multiple-step income statement formats.
- Q 4-6 Explain what is meant by the term earnings quality.
- Q 4-7 What are restructuring costs and where are they reported in the income statement?
- Q 4-8 Define impairment of goodwill. Why is the process necessary?
- Q 4-9 Define what is meant by a discontinued operation in the context of reporting the results of discontinued operations. How are discontinued operations reported in the income statement?
- Q 4-10 Define extraordinary items.
- Q 4-11 How should extraordinary gains and losses be reported in the income statement?
- Q 4-12 What is meant by a change in accounting principle? Discuss the accounting treatment for a change in accounting principle.
- Q 4-13 Define earnings per share (EPS). For which income statements must EPS be disclosed?
- Q 4-14 Accounting principles are required to make estimates and every other done estimates must disclose. In what period(s) is the effect of a change in an accounting estimate reported?
- Q 4-15 A company has a material error and corrects it a year subsequent to the year the error was made. Describe the accounting treatment for prior period adjustments.
- Q 4-16 Describe the purpose of the statement of cash flows.
- Q 4-17 Identify and briefly describe the three categories of cash flows reported in the statement of cash flows.
- Q 4-18 Explain what is meant by noncash investing and financing activities separately in the statement of cash flows. Give an example of one of these activities.
- Q 4-19 Distinguish between the direct method and the indirect method for reporting the results of operating activities in the statement of cash flows.

BRIEF EXERCISES

- BE 4-1 Comprehensive Income
Q Bailey Beverage Company reported net income of \$620,000 for 2006. In addition, the company deferred a \$60,000 price reduction in sales values and had unrealized building gains on investment securities of \$40,000. Prepare a statement of comprehensive income for 2006. The company's income tax rate is 30%.
- BE 4-2 Single-step income statement
The adjusted trial balance of Pacific Scientific Corporation on December 31, 2006, the end of the company's fiscal year, contains the following account items: \$ million: sales revenue \$5,000; cost of goods sold \$3,400; selling expenses \$100; general and administrative expenses \$150; interest expense \$35 and gain on sale of investments \$45. Income tax expense has not yet been accrued. The income tax rate is 40%. Prepare a single-step income statement for 2006. Ignor EPS disclosures.
- BE 4-3 Multiple-step income statement
Refer to the situation described in BE 4-2. If the company's accountant prepared a multiple-step income statement, what amount would appear in that statement for (a) operating income and (b) nonoperating income?
- BE 4-4 Multiple-step income statement
Refer to the situation described in BE 4-3. Prepare a multiple-step income statement for 2006. Ignore EPS disclosures.

BE 4-5
Multiple-step income
statement

• LO2, LO4

The following is a partial year-end adjusted trial balance.

| Account Title | Debits | Credits |
|---|---------|---------|
| Sales revenue | | 300,000 |
| Loss on sale of investments | 22,000 | |
| Interest revenue | | 4,000 |
| Loss from flood damage (unusual and infrequent) | 50,000 | |
| Cost of goods sold | 100,000 | |
| General and administrative expenses | 40,000 | |
| Restructuring costs | 30,000 | |
| Selling expenses | 25,000 | |
| Income tax expense | 0 | |

Income tax expense has not yet been accrued. The income tax rate is 40%. Determine the following: (a) operating income (loss), (b) income (loss) before any separately reported items, and (c) net income (loss).

BE 4-6
Comparative reported
items

• LO4, LO9

The following are partial income statements because balances taken from the December 31, 2006, year-end trial balance of White and Sons, Inc.: restructuring costs, \$300,000; unusual revenue, \$400,000; loss from earthquake (unusual and infrequent), \$400,000; and loss on sale of investments, \$50,000. Income tax expense has not yet been accrued. The income tax rate is 40%. Prepare the lower portion of the 2006 income statement beginning with \$850,000 income before income taxes and extraordinary items. Include appropriate basic EPS disclosures. The company had 1,000 shares of common stock outstanding throughout the year.

BE 4-7
Discontinued
operations

• LO5

On December 31, 2006, the end of the fiscal year, Gulfstream Microtech Corporation completed the sale of its semiconductor division for \$10 million. The business segment qualifies as a component of the entity according to SFAS No. 144. The book value of the assets of the segment was \$8 million. The operating loss of the segment during 2006 was \$3.8 million. Pretax income from continuing operations for the year ended \$5.8 million. The income tax rate is 30%. Prepare the lower portion of the 2006 income statement beginning with pretax income from continuing operations. Ignore EPS disclosures.

BE 4-8
Discontinued
operations

• LO5

Refer to the situation described in BE 4-7. Assume that the semiconductor segment was not sold during 2006 but was held for sale at year-end. The estimated fair value of the segment's assets less costs to sell at December 31 was \$0 million. Prepare the lower portion of the 2006 income statement beginning with pretax income from continuing operations. Ignore EPS disclosures.

BE 4-9
Discontinued
operations

• LO5

Refer to the situation described in BE 4-8. Assume that the estimated fair value of the segment's assets less costs to sell on December 31 was \$7 million rather than \$0 million. Prepare the lower portion of the 2006 income statement beginning with pretax income from continuing operations. Ignore EPS disclosures.

BE 4-10
Accounting change

• LO7

The Korte Company decided to change its inventory costing method from average to FIFO. The depreciation method also was changed from double declining balance to straight line. Identify the type of accounting change for these two changes and briefly describe the differences in accounting treatment between the two, if any.

BE 4-11
Accounting change

• LO7

Powell Manufacturing purchased machinery for \$300,000 at the beginning of 2004. A six-year life was estimated and no residual value was anticipated. Straight-line depreciation is used. At the beginning of 2006 the estimated useful life was revised to 10 years (no trial). What type of accounting change is this? Determine depreciation for 2006.

BE 4-12
Statement of cash
flows (direct method)

• LO6

The following are summary cash transactions that occurred during the year for Hullard Haulthorpe Co. (HHC).

| | |
|-----------------------------|-----------|
| Cash received from: | |
| Customers | \$660,000 |
| Interest on note receivable | 12,000 |
| Collection of notes payable | 100,000 |
| Sale of land | 40,000 |
| Issuance of common stock | 200,000 |
| Cash paid for: | |
| Interest on note payable | 18,000 |
| Purchase of equipment | 20,000 |
| Operating expenses | 440,000 |
| Dividends to shareholders | 30,000 |

Prepare the cash flows from operating activities section of HHC's statement of cash flows using the direct method.

EF 4-1
Statement of cash
flows, investing and
financing activities

Refer to the situation described in EF 4-1-2. Prepare the cash flows from investing and financing activities sections of HHC's statement of cash flows.

EF 4-3
Statement of cash
flows—indirect method

Net income of Marfisch Company was \$45,000. The accounting records reveal depreciation expense of \$80,000 as well as increases to prepaid rent, salaries payable, and income taxes payable of \$50,000, \$15,000, and \$12,000, respectively. Prepare the cash flows from operating activities section of Marfisch's statement of cash flows using the indirect method.

EXERCISES

Available with *Accounting Principles, Managerial, and Financial Accounting*, 10th edition, at www.mhhe.com/collegeaccounting.

E 4-1
Comprehensive income

The Maccloud Consulting Group reports net income of \$1,354,000 for its fiscal year ended December 31, 2006. In addition, during the year the company experienced a foreign currency translation adjustment gain of \$242,000 and had unrealized losses on investment securities of \$80,000. The company's effective tax rate on all items affecting comprehensive income is 30%. Each component of other comprehensive income is displayed net of tax.

Required:

1. Prepare a combined statement of income and comprehensive income for 2006, beginning with net income.
2. Prepare a separate statement of comprehensive income for 2006.

E 4-2
Income statement
format, single step and
multiple step

The following is a partial trial balance for the Kirova Shoe Corporation as of December 31, 2006.

| Account Title | Debits | Credits |
|---------------------------|---------|---------|
| Sales revenue | | 300,000 |
| Interest revenue | | 30,000 |
| Cash on sale of equipment | | 50,000 |
| Cost of goods sold | 720,000 | |
| Salaries expense | 160,000 | |
| Depreciation expense | 50,000 | |
| Interest expense | 40,000 | |
| Rent expense | 25,000 | |
| Income tax expense | 30,000 | |

60,000 shares of common stock were outstanding throughout 2006.

Required:

1. Prepare a single-step income statement for 2006, including EPS disclosures.
2. Prepare a multiple-step income statement for 2006, including EPS disclosures.

E 4-3
Income statement
format, single step and
multiple step

The following is a partial trial balance for Coastal Lighting Corporation as of December 31, 2006:

| Account Title | Debits | Credits |
|---|---------|-----------|
| Sales revenue | | 2,350,000 |
| Rental revenue | | 80,000 |
| Loss on sale of equipment | 27,500 | |
| Loss from flood damage (event is both unusual and infrequent) | 71,000 | |
| Cost of goods sold | 200,000 | |
| Loss from write-down of inventory due to obsolescence | 200,000 | |
| Salaries expense | 300,000 | |
| Depreciation expense | 100,000 | |
| Interest expense | 90,000 | |
| Rent expense | 50,000 | |

700,000 shares of common stock were outstanding throughout 2006. Income tax expense has not yet been accrued. The income tax rate is 30%.

Required:

1. Prepare a single-step income statement for 2006, including EPS disclosures.
2. Prepare a multiple-step income statement for 2006, including EPS disclosures.

E 4-4
Multiple-step
statement of income
and comprehensive
income

• LO 1, LO 2, LO 3

The trial balance for Linlin Corporation, a manufacturing company, for the year ended December 31, 2006, includes the following (copied directly from journals):

| Account Title | Debits | Credits |
|---|-----------|-----------|
| Sales revenue | | 2,300,000 |
| Gain on early debt extinguishment (annual and infrequent) | | 400,000 |
| Cost of goods sold | 1,400,000 | |
| Selling and administrative expenses | 420,000 | |
| Interest expense | 40,000 | |
| Unrealized holding gains on investment securities | | 80,000 |

The trial balance does not include the balance for income taxes. Linlin's income tax rate is 30%. One million shares of common stock were outstanding throughout 2006.

Required:

Prepare a combined multiple-step statement of income and comprehensive income for 2006, including appropriate EPS disclosures.

The following excerpt from an income statement was prepared by the accountant of the Axel Corporation:

AXEL CORPORATION
Income Statement
For the Year Ended December 31, 2006

| | | |
|---|-------------|--------------|
| Revenue and gains | | |
| Sales | | \$572,000 |
| Interest and dividends | | 20,000 |
| Gain on early debt extinguishment (annual and infrequent) | | 35,000 |
| Total revenues and gains | | 627,000 |
| Expenses and losses | | |
| Cost of goods sold | \$2,500,000 | |
| Selling expenses | 6,000 | |
| Administrative expenses | 3,000 | |
| Interest | 26,000 | |
| Restructuring costs | 75,000 | |
| Impairment losses | 60,000 | |
| Total expenses and losses | | 2,720,000 |
| Net income | | \$ 1,100,000 |
| Earnings per share | | \$ 1.10 |

Required:

Prepare a multiple-step income statement for 2006 applying generally accepted accounting principles. The income tax rate is 40%. The gain from early extinguishment of debt is considered an unusual and infrequent event.

E 4-6
Discontinued
operations

• LO 5

Chance Company had two operating divisions: one manufacturing farm equipment and the other office supplies. Both divisions are considered separate components as defined by SFAS No. 144. The farm equipment component had been unprofitable, and on September 1, 2006, the company adopted a plan to sell the assets of the division. The actual sale was effected on December 15, 2006, at a price of \$600,000. The book value of the division's assets was \$1,000,000, resulting in a before-tax loss of \$400,000 on the sale.

The division incurred before-tax operating losses of \$100,000 from the beginning of the year through December 1. The income tax rate is 40%. Chance's after-tax income from its continuing operations is \$350,000.

Required:

Prepare an income statement for 2006 beginning with income from continuing operations. Include appropriate EPS disclosures assuming that 100,000 shares of common stock were outstanding throughout the year.

E 4-8
Income statement
presentation;
discontinued
operations;
restructuring charges

• LO 1, LO 2, LO 3

Esquire Cordis Book Company had income before tax of \$1,000,000 in 2006 before considering the following additional items:

- Esquire sold one of its operating divisions, which qualified as a separate component according to SFAS No. 144. The before-tax loss on disposal was \$150,000. The division generated before-tax operating income from the beginning of the year through disposal of \$500,000. Neither the loss on disposal nor the operating income is included in the \$1,000,000 before-tax income the company generated from its other divisions.
- The company incurred restructuring costs of \$80,000 during the year.

Required:

Prepare a 2006 income statement for Esquire beginning with income from continuing operations. Assume an income tax rate of 40%. Ignore EPS disclosures.

Ex 8
An unaffiliated
division disposed of
its assets over
a two-year period.

■

Ex 9
A discontinued
operation disposed of
its assets over
a two-year period.

■

Ex 10
A unit is changed.

■

Ex 11
Accounting change.

■

Ex 12
An equity split.

■

Ex 13
A change in
the accounting
method.

■

Kandam Enterprises, Inc. has two operating divisions, one manufacturing machinery and the other hosiery and belts. Both divisions are considered separate components as defined by SFAS No. 144. The hosiery division has been unprofitable, and on November 15, 2006, Kandam adopted a formal plan to sell the division. The sale was completed on April 30, 2007. At December 31, 2006, the component was considered held for sale.

On December 31, 2006, the company's fiscal year-end, the book value of the assets of the hosiery division was \$251,000. On that date, the fair value of the division, less costs to sell, was \$218,000. The before-tax operating loss of the division for the year was \$141,000. The company's effective tax rate is 40%. The after-tax income from continuing operations for 2006 was \$400,000.

Required

Prepare a partial income statement for 2006 beginning with income from continuing operations. Ignore EPS disclosures.

Ex 14 Repeat requirement 1, assuming that the established net sales price of the hosiery division's assets was \$400,000, instead of \$218,000.

On September 7, 2006, Zilber, Inc. entered into an agreement to sell one of its divisions that qualifies as a component of the entity according to SFAS No. 144. By December 31, 2006, the company's fiscal year-end, the division had not yet been sold, but was being held for sale. The net fair value (fair value minus costs to sell) of the division's assets at the end of the year was \$1 million. The pretax operating income of the division during 2006 was \$4 million. Pretax income from continuing operations for the year totaled \$14 million. The discount rate is 40%. Zilber reported net income for the year of \$7.2 million.

Required

Determine the book value of the division's assets on December 31, 2006.

Canfax Milling Company purchased machinery on January 2, 2004, for \$800,000. A five-year life was estimated and no residual value was anticipated. Canfax decided to use the straight-line depreciation method and recorded \$160,000 in depreciation in 2004 and \$160,000 in 2005. Early in 2006, the company revised the estimated life of the machinery to eight years.

Required

1. What type of accounting change is this?
2. Briefly describe the accounting treatment for this change.
3. Determine depreciation for 2006.

This is a variation of the previous question.

Canfax Milling Company purchased new machinery on January 2, 2004, for \$800,000. A five-year life was estimated and no residual value was anticipated. Canfax decided to use the double-declining balance method and recorded depreciation of \$320,000 in 2004 and \$192,000 in 2005. Early in 2006, the company changed its depreciation method to the straight-line method.

Required

1. Briefly describe the way Canfax should report this accounting change in the 2005–2006 comparative financial statements.
2. Prepare any 2006 journal entry related to the change.

The Spanish Import Company had 1 million shares of common stock outstanding during 2006. Its income statement reported the following items: income from continuing operations, \$5 million; loss from discontinued operations, \$1.6 million; extraordinary gain, \$6.2 million. All of these amounts are net of tax.

Required

Prepare the 2006 EPS presentation for the Spanish Import Company.

The following questions dealing with income statement presentation are adapted from questions that appeared in CPA examination questions; the response that best completes the statements or questions.

Ex 15 In Bear Food Co.'s 2006 single-step income statement, the maximum total Revenue (revenues) of the following

| | |
|---|-----------|
| Net sales revenue | \$187,000 |
| Results from discontinued operations: | |
| Income from discontinued component net of tax | 17,000 |
| Interest revenue | 10,200 |
| Gain on sale of equipment | 4,700 |
| Extraordinary gain net of \$750 tax effect | 500 |
| Total revenues | \$215,400 |

In the absence of any of the 2006 income statement, Bear Food should have reported total revenues of

- a. \$187,000
- b. \$215,400

- a. \$20,700
- d. \$20,700
2. A transaction that is unusual but not infrequent should be reported separately as (an)
 - a. Extraordinary item, net of applicable income taxes
 - b. Extraordinary item, but not net of applicable income taxes
 - c. Component of income from continuing operations, net of applicable income taxes
 - d. Component of income from continuing operations, but not net of applicable income taxes

E 4-14 Statement of cash flows: classifications

LO 1

The statement of cash flows classifies all cash inflows and outflows into one of the three categories shown below and lettered from a through c. In addition, certain transactions that do not involve cash are reported as the statement as noncash investing and financing activities, labeled d.

- a. Operating activities
- b. Investing activities
- c. Financing activities
- d. Noncash investing and financing activities

Required

For each of the following transactions, use the letters above to indicate the appropriate classification category.

1. Purchase of equipment for cash.
2. Payment of employee salaries.
Collection of cash from customers
3. Cash proceeds from a sale payable
4. Purchase of common stock of another corporation for cash
5. Issuance of common stock for cash.
Sale of machinery for cash
6. Payment of interest on note payable
7. Exchange of bonds payable in exchange for land and building
8. Payment of cash dividends to shareholders
9. Payment of principal on note payable

E 4-15 Statement of cash flows: preparation

LO 1

The following summary transactions occurred during 2006 for Blackwater Bakery.

| Cash Received From: | |
|---------------------------------------|-----------|
| Customers | \$380,000 |
| Interest on note receivable | 6,000 |
| Principal on note receivable | 50,000 |
| Sale of investments | 30,000 |
| Proceeds from note payable | 100,000 |
| Cash Paid For: | |
| Purchase of inventory | 60,000 |
| Interest on note payable | 5,000 |
| Purchase of equipment | 85,000 |
| Salaries to employees | 90,000 |
| Principal on note payable | 25,000 |
| Payments of dividends to shareholders | 20,000 |

The balance of cash and cash equivalents at the beginning of 2006 was \$ 7,000.

Required

Prepare a statement of cash flows for 2006 for Blackwater Bakery. Use the direct method for reporting operating activities.

E 4-16 Statement of cash flows: effects from transactions

LO 1

The following transactions occurred during March 2006 for the Whitewright Corporation. The summary notes and operates a wholesale warehouse. (These are the same transactions analyzed in Exercise 2-1, which we determined their effect on elements of the accounting equation.)

1. Issued 30,000 shares of capital stock in exchange for \$300,000 in cash.
2. Purchased equipment at a cost of \$40,000: \$10,000 cash was paid and a note payable was signed for the balance owed.
3. Purchased inventory on account at a cost of \$90,000. The company uses the perpetual inventory system.
4. Credit sales for the month totaled \$120,000. The cost of the goods sold was \$70,000.
5. Paid \$3,000 in rent on the warehouse building for the month of March.
6. Paid \$6,000 to an insurance company for fire and liability insurance for a one-year period beginning April 1, 2006.
7. Paid \$70,000 on account for the merchandise purchased in 3.
8. Collected \$55,000 from customers on account.
9. Recorded depreciation expense of \$1,000 for the month on the equipment.

Required

Analyze each transaction and classify each as a financing, investing, and/or operating activity (a transaction can represent more than one type of activity). In doing so, also indicate the cash effect of each, if any. If there is no cash effect, simply place a check mark (✓) in the appropriate column(s).

Example

| Financing | Investing | Operating |
|-----------|-----------|-----------|
| ✓ | | |

2. Prepare a statement of cash flows. Assume the cash balance at the beginning of the month was \$50,000.

The following questions dealing with the statement of cash flows are adapted from questions that appeared in CPA exam studies. Determine the answer that best completes the statements or questions.

- The primary purpose of a statement of cash flows is to provide relevant information about:
 - On a continuous basis, the firm's and management's cash receipts and disbursements.
 - An enterprise's ability to generate future positive net cash flows.
 - The cash receipts and cash disbursements of an enterprise during a period.
 - An enterprise's ability to meet cash operating needs.
- In a statement of cash flows, proceeds from issuing equity instruments should be classified as cash inflows from:
 - Lending activities.
 - Operating activities.
 - Investing activities.
 - Financing activities.
- In a statement of cash flows, payments to acquire debt instruments of other entities (other than cash equivalents) should be classified as cash outflows for:
 - Operating activities.
 - Investing activities.
 - Financing activities.
 - Non-cash items.

Presented below is the 2006 income statement and comparative balance sheet information for Tiger Enterprises.

TIGER ENTERPRISES
Income Statement
For the Year Ended December 31, 2006

| | | |
|--|----------------|----------------|
| \$ in thousands | | |
| Sales revenue | | 57,000 |
| Operating expenses: | | |
| Cost of goods sold | 63,360 | |
| Depreciation | 340 | |
| Insurance | 100 | |
| Administrative & other | 800 | |
| Total operating expenses | | 5,500 |
| Income before income taxes | | 400 |
| Income tax expense | | 600 |
| Net income | | <u>\$ 900</u> |
| Balance Sheet Information (\$ in thousands) | Dec. 31, 2006 | Dec. 31, 2005 |
| Assets: | | |
| Cash | \$ 300 | \$ 200 |
| Accounts receivable | 50 | 800 |
| Inventory | 640 | 800 |
| Prepaid insurance | 20 | 20 |
| Plant and equipment | 700 | 900 |
| Less: Accumulated depreciation | (840) | (500) |
| Total assets | <u>\$3,000</u> | <u>\$2,850</u> |
| Liabilities and Shareholders' Equity: | | |
| Accounts payable | \$ 300 | \$ 340 |
| Payables for administrative & other expenses | 100 | 400 |
| Income taxes payable | 200 | 50 |
| Note payable (due 12/31/2007) | 800 | 600 |
| Minority stock | 900 | 800 |
| Retained earnings | 500 | 540 |
| Total liabilities and shareholders' equity | <u>\$3,000</u> | <u>\$2,850</u> |

Required

Prepare Tiger's statement of cash flows, using the indirect method to present cash flows from operating activities.

E 4-19

Statement of cash flows, direct method

Refer to the situation described in E 4-18.

Required

Prepare the cash flows from operating activities section of Tiger's NIKE statement of cash flows using the direct method. Assume that all purchases and sales of inventory are on account, and that there are no other assets held in exchange for accounts receivable. Hint: Use T-accounts for the necessary items to isolate the inflow pattern needed for the statement.

E 4-20

Concepts, terminology

Listed below are several terms and phrases associated with the cash statement presentation and the statement of cash flows. Pair each item from List A (by letter) with the item from List B that is most appropriately associated with it.

List A

1. Intra-period tax allocation
2. Comprehensive income
3. Extraordinary items
4. Operating income
5. An operation (according to SFAS 144)
6. Earnings per share
7. Price period adjustment
8. Financing activities
9. Operating activities (SOI)
10. Investing activities
11. Direct method
12. Indirect method

List B

- a. Unusual, infrequent, and material gains and losses.
 - b. Starts with net income and works backwards to convert to cash.
 - c. Reports the cash effects of each operating activity directly on the statement.
 - d. Correction of a material error of a prior period.
 - e. Related to the external financing of the company.
 - f. Associated with income statement item.
 - g. Total nonowner change in equity.
 - h. Related to the transactions entering into the determination of net income.
 - i. Related to the acquisition and disposition of long-term assets.
 - j. Required disclosure for publicly traded corporations.
 - k. A component of an entity.
- Directly related to principal revenue-generating activities.

E 4-21

Multiple choice, CMA exam, income statement

The following questions dealing with the income statement are adapted from questions that previously appeared on Certified Management Accountants (CMA) examination. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or answers the question.

• CQ2 15-2006

In a multiple-step income statement for a retail company, all of the following are included in the operating section except:

- a. Sales
- b. Cost of goods sold
- c. Dividend revenue
- d. Administrative and selling expenses

Which one of the following items is included in the determination of income from continuing operations?

- a. Gain on the sale of assets
- b. Foreign currency loss
- c. Cumulative effect of a change in an accounting principle
- d. Unusual loss from a write-down of inventory

3. Which reporting extraordinary items

- a. Each item, net of tax, is presented on the face of the income statement separately as a component of net income for the period.
- b. Each item is presented exclusive of any related income tax.
- c. Each item is presented as an unusual item within income from continuing operations.
- d. All extraordinary gains or losses that occur in a period are summarized as total gains and total losses, then offset to present the net extraordinary gain or loss.

PROBLEMS

An alternate exercise and problem set is available on the text website: www.mhhe.com/apicloud1e

Duke Company's records show the following account balances at December 31, 2006:

| | | |
|-------------------------------------|---|--------------|
| Sales | | \$15,000,000 |
| Cost of goods sold | + | 9,000,000 |
| General and administrative expenses | | 1,000,000 |
| Selling expenses | + | 500,000 |
| Interest expense | + | 700,000 |

P 4-1

Multiple-step statement of income and comprehensive income

• CQ2 10-2006

Excel

Income tax expense has not yet been determined. The following events also occurred during 2006:

1. \$200,000 in restructuring costs were incurred in connection with plant closing.
2. The company operates a factory in South America. During the year, the foreign government took over expropriated the factory and paid Dike \$1,000,000, which was one-fourth of the book value of the assets involved.
3. Inventory costing \$40,000 was reworked by the company. Material losses of this type were incurred twice in the past 3 years.
4. It was determined that depreciation expense for 2005 was understated by \$50,000 due to a mathematical error.
5. The company experienced a foreign currency translation adjustment loss of \$200,000 and had unrealized gains on investment securities of \$120,000.

Required

Prepare a combined multiple-step statement of income and comprehensive income for 2006. The company's effective tax rate on all items affecting comprehensive income is 40%. Each component of other comprehensive income should be displayed net of its related EPS disclosures.

Selected information about income statement accounts for the Reed Company are presented below (the company's fiscal year ends on December 31):

| | 2006 | 2005 |
|--|-------------|-------------|
| Sales | \$4,400,000 | \$3,500,000 |
| Cost of goods sold | 2,600,000 | 2,050,000 |
| Administrative expenses | 800,000 | 675,000 |
| Selling expenses | 360,000 | 272,000 |
| Interest revenue | 150,000 | 140,000 |
| Interest expense | 700,000 | 200,000 |
| Loss on sale of assets of discontinued component | 80,000 | — |

On July 1, 2006, the company adopted a plan to discontinue a division that qualifies as a component of an entity as defined in SAS No. 244. The assets of the component were sold on September 30, 2006, for \$50,000 less than their book value. The sales of operations for the component included in the above account balances were as follows:

| | 7/1/06–9/30/06 | 2005 |
|-------------------------------|------------------|------------------|
| Sales | \$800,000 | \$500,000 |
| Cost of goods sold | (290,000) | (320,000) |
| Administrative expenses | (50,000) | (40,000) |
| Selling expenses | (20,000) | (20,000) |
| Operating income before taxes | <u>\$140,000</u> | <u>\$110,000</u> |

In addition to the account balances shown, several events occurred during 2006 that have not yet been reflected in the above accounts:

1. A fire caused \$30,000 in uninsured damages to the main office building. The fire was considered to be an infrequent but not unusual event.
2. \$5 million face value of bonds payable were re-purchased (paid off) prior to maturity resulting in a loss of \$100,000. The amount of the loss is unusual and the event is considered unusual and infrequent.
3. Inventory that had cost \$60,000 had become obsolete because a competitor introduced a better product. The inventory was sold at a loss for \$5,000.
4. Income taxes have not yet been determined.

Required:

Prepare a multiple-step income statement for the Reed Company for 2006, showing 2005 information of comparative format, including income taxes computed at 40% and EPS disclosures assuming 300,000 shares of common stock.

The following condensed income statements of the Jackson Holding Company are presented for the two years ended December 31, 2006 and 2005:

| | 2006 | 2005 |
|--------------------------|--------------|-------------|
| Sales | \$15,000,000 | \$9,400,000 |
| Cost of goods sold | 9,200,000 | 6,700,000 |
| Gross profit | 5,800,000 | 2,700,000 |
| Operating expenses | 3,200,000 | 2,000,000 |
| Operating income | 2,600,000 | 700,000 |
| Gain on sale of division | 600,000 | — |

| | | |
|--------------------|------------------|----------------|
| Income tax expense | 3,200,000 | 1,000,000 |
| Net income | <u>1,280,000</u> | <u>400,000</u> |
| | \$ 7,920,000 | \$ 6,000,000 |

On October 14, 2006, Jackson entered into a tentative agreement to sell the assets of one of its divisions. The division comprises operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the company. The division was sold on December 31, 2006, for \$5,000,000. Book value of the division's assets was \$4,400,000. The division's contribution to Jackson's operating income before-tax for each year was as follows:

| | |
|------|----------------|
| 2006 | \$400,000 loss |
| 2005 | \$300,000 loss |

Assume an income tax rate of 40%.

Required

- Prepare revised income statements according to generally accepted accounting principles, beginning with income from continuing operations before income taxes. Ignore EPS disclosures.
- Assume that by December 31, 2006, the division had not yet been sold but was considered held for sale. The fair value of the division's assets on December 31 was \$5,000,000. How would the presentation of discontinued operations be different from your answer to requirement 1?
- Assume that by December 31, 2006, the division had not yet been sold but was considered held for sale. The fair value of the division's assets on December 31 was \$3,000,000. How would the presentation of discontinued operations be different from your answer to requirement 1?

For the year ending December 31, 2006, Micron Corporation had income from continuing operations before taxes of \$1,200,000 before considering the following transactions and events. All of the items described below are before taxes and the amounts should be considered material.

- During 2006, Micron decided to call in an outstanding issue of bonds. As a result, the firm recognized a gain on the early extinguishment of bonds of \$400,000. The event is considered unusual and infrequent.
- In November of 2006, Micron sold its Waffle House restaurant chain that qualified as a component of an entity. The company had adopted a plan to sell the chain in May of 2006. The operating income of the chain from January 1, 2006, through November was \$100,000 and the book net sale of the chain's assets was \$200,000.
- In 2006, Micron sold one of its six factories for \$1,200,000. At the time of the sale, the factory had a carrying value of \$1,100,000. The factory was not considered a component of the entity.
- In 2004, Micron's accountant omitted the annual adjustment for plant's amortization expense of \$120,000. The error was not discovered until December, 2006.

Required

- Prepare Micron's income statement, beginning with income from continuing operations before taxes, for the year ended December 31, 2006. Assume an income tax rate of 30%. Ignore EPS disclosures.
- Briefly explain the multisteps for recognizing certain income statement events from income from continuing operations.

The Diversified Portfolio Corporation provides investment advice to customers. A condensed income statement for the year ended December 31, 2006, appears below:

| | |
|----------------------------|------------------|
| Service revenue | \$900,000 |
| Operating expenses | <u>700,000</u> |
| Income before income taxes | 200,000 |
| Income tax expense | <u>60,000</u> |
| Net income | <u>\$120,000</u> |

The following balance sheet information also is available:

| | 12/31/06 | 12/31/05 |
|---------------------------------------|-----------|-----------|
| Cash | \$275,000 | \$ 70,000 |
| Accounts receivable | 120,000 | 100,000 |
| Accounts payable (operating expenses) | 70,000 | 60,000 |
| Income taxes payable | 10,000 | 15,000 |

In addition, the following transactions took place during the year:

- Common stock was issued for \$100,000 in cash.
- Long-term investments were sold for \$50,000 in cash. The original cost of the investments also was \$50,000.

P 4-1
Income statement
presentation

• 05-006-003

P 4-5
Statement of cash
flows

• 00-1

3. \$50,000 in cash dividends was paid to shareholders.
4. The company has no outstanding debts, other than those payables listed above.
5. Operating expenses include \$312,000 in depreciation expense.

Required:

1. Prepare a statement of cash flows for 2006 for the Diversified Portfolio Corporation. Use the direct method for reporting operating activities.
2. Prepare the cash flows from operating activities section of Diversified's 2006 statement of cash flows using the indirect method.

The preliminary 2006 income statement of Alexian Systems, Inc. is presented below.

| ALEXIAN SYSTEMS, INC. | |
|--|--------|
| Income Statement | |
| For the Year Ended December 31, 2006 | |
| (\$ in millions, except per share amounts) | |
| Revenue and gains | |
| Net interest income | \$2.5 |
| Other income | 2.0 |
| Total revenue and gains | 5.5 |
| Expenses | |
| Cost of goods sold | 2.0 |
| Selling and administrative expenses | 12.4 |
| Interest expense | 5.7 |
| Provision for losses | 4.4 |
| Net income | \$ 7.8 |
| Earnings per share | \$3.90 |

Additional information:

1. Selling and administrative expenses include \$2.0 million of restructuring costs.
2. Included in other income is an extraordinary gain of \$12.0 million. The remaining 2.0 million is from the gain on sale of operating assets.
3. Cost of goods sold was increased by \$.5 million to correct an error in the calculation of 2005's ending inventory. The amount is material.

Required:

For each of the three additional facts listed above, discuss the appropriate presentation of the item described. Write up your answer in a memo format.

This is a variation of the previous problem focusing on income statement presentation.

Required:

Refer to the information presented in Problem 4-5. Prepare a revised income statement for 2006 reflecting the additional facts. Use a multiple-step format. Assume that an income tax rate of 40% applies to all income statement items, and that 20 million shares of common stock were outstanding throughout the year.

Rembrandt Paint Company had the following income statement items for the year ended December 31, 2006 (\$ in millions):

| | | | |
|--------------------|----------|-------------------------------------|---------|
| Net sales | \$10,000 | Cost of goods sold | \$2,500 |
| Interest income | 200 | Selling and administrative expenses | 2,000 |
| Interest expense | 350 | Restructuring costs | 600 |
| Extraordinary gain | 2,000 | | |

In addition, during the year the company completed the disposition of its plastic business and incurred a loss from operations of \$.5 million and a gain on disposal of the component's assets of \$2 million. 500,000 shares of common stock were outstanding throughout 2006. Income tax expense has not yet been accrued. The income tax rate is 30% on all items of income (loss).

Required:

Prepare a multiple-step income statement for 2006, including EPS disclosures.

The chief accountant for Grandview Corporation provides you with the company's 2006 statement of cash flows and income statement. The accountant has asked for your help with better labeling figures in the company's comparative balance sheets. These financial statements are shown below (\$ in millions).

PA-4
income statement
presentation unusual
items

• 10-16-08

PA-7
income statement
presentation unusual
items

Excel

PA-8
income statement
presentation unusual
items

Excel

11
Integration of financial
statements: Chapters 3
and 4
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GRANDVIEW CORPORATION
Statement of Cash Flows
For the Year Ended December 31, 2006

| | |
|--|-------------|
| Cash Flows from Operating Activities | |
| Collections from customers | \$7 |
| Payments to suppliers | 301 |
| Payments for general & administrative expenses | 165 |
| Payment of income taxes | 19 |
| Net cash flows from operating activities | \$14 |
| Cash Flows from Investing Activities | |
| Sale of equipment | 40 |
| Cash Flows from Financing Activities | |
| Issuance of common stock | 10 |
| Payment of dividends | 31 |
| Net cash flows from financing activities | 7 |
| Net increase in cash | \$61 |

GRANDVIEW CORPORATION
Income Statement
For the Year Ended December 31, 2006

| | |
|----------------------------|-------------|
| Sales revenue | \$80 |
| Cost of goods sold | 12 |
| Gross profit | 48 |
| Operating expenses | |
| General and administrative | 54 |
| Depreciation | 0 |
| Total operating expenses | 78 |
| Operating income | 20 |
| Other income | |
| Gain on sale of equipment | 15 |
| Income before income taxes | 35 |
| Income tax expense | |
| Net income | \$29 |

GRANDVIEW CORPORATION
Balance Sheet
At December 31

| | 2006 | 2005 |
|--|-------|-------|
| Assets: | | |
| Cash | \$120 | 5 |
| Accounts receivable | 1 | 84 |
| Inventory | 60 | 1 |
| Property, plant & equipment | 150 | 200 |
| Less: Accumulated depreciation | (40) | 0 |
| Total assets | 291 | 290 |
| Liabilities and Shareholders' Equity: | | |
| Accounts payable to suppliers | \$ 40 | \$ 30 |
| Payables to selling & admin. expenses | 9 | 9 |
| Income taxes payable | 22 | 7 |
| Common stock | 200 | 230 |
| Retained earnings | 20 | 47 |
| Total liabilities and shareholders' equity | 291 | 290 |

Required:

- a. Prepare the missing entries.
1. Prepare the operating activities section of Grandview's 2006 statement of cash flows using the indirect method.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Judgment Case 4-2 Restructuring Costs

The financial community in the United States has become increasingly concerned with the quality of the income statement.

Required

1. Define the term *earnings quality*.
2. Explain the distinction between permanent and temporary earnings as it relates to the concept of earnings quality. How do earnings management practices affect the quality of earnings?
3. Assume that a manufacturing company's annual income statement included a large gain from the sale of its seasonal assets. What factors would you consider in determining whether or not this gain should be included in an assessment of the company's permanent earnings?

Judgment Case 4-3 Restructuring Costs

The appearance of restructuring costs in corporate income statements increased significantly in the 1980s and 1990s.

Required

1. What types of costs are included in restructuring costs? How are restructuring costs treated?
2. How would you classify restructuring costs in a multi-step income statement?
3. What factors would you consider in determining whether or not restructuring costs should be included in a company's income statement?

Judgment Case 4-4 Earnings Management

Companies often are under pressure to meet or beat Wall Street earnings projections in order to increase stock prices and attract new investors. Some resort to earnings management practices to achieve this goal.

Required

Is earnings management always intended to produce higher income? Explain.

Real World Case 4-4 Earnings Quality and Earnings Management

The situation in this case requires access to company data via the Internet.

LinkedIn, Inc., the world's largest networking products company, announced on May 6, 2009, that its first-quarter earnings for the quarter ended April 26, 2009, were \$1.0 million. They also disclosed that annual earnings for the quarter determined according to generally accepted accounting principles were a loss of \$1.0 million.

Required

1. What is meant by the term *first-quarter earnings* in this context? How do first-quarter earnings relate to the concept of earnings quality?
2. Access the company's HQ (quarterly report) for the quarter ended April 26, 2009. You can go to the company's Internet site, EDGAR, at <http://www.sec.gov/edgar/sec.gov/edgar.shtml>. Using the company's income statement for the quarter and disclosure notes, reconcile the GAAP loss of \$1.0 million to the pre-tax earnings figure of \$1.0 million. Remember that both of these earnings loss figures are net of tax.

Real World Case 4-5 Earnings Management and Earnings Quality

McMinville Corporation manufactures paper products. In 2002, the company purchased several large tracts of timber for \$22 million with the intention of harvesting the timber rather than buying this critical raw material from outside suppliers. However, in 2006, McMinville abandoned the idea and all of the timber tracts were sold for \$35 million. Net income, at 2006, before considering this event, is \$17.5 million and the company's effective tax rate is 34%.

The focus of this case is the income statement presentation of the gain on the sale of the timber tracts. Your instructor will divide the class into two to six groups depending on the size of the class. The mission of your group is to reach consensus on the appropriate income statement presentation of the gain.

Required

Each group member should deliberate the question independently and draft a tentative agreement prior to the group discussion.

In class, each group will share for 10 to 15 minutes in different areas of the classroom. During this time, the group members will take turns sharing their suggestions for the purpose of arriving at a single group decision.

After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group into a cohesive approach to the exercise.

After the initial time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group into a cohesive approach to the exercise.

After the initial time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group into a cohesive approach to the exercise.

Carson's Hardware Store (CHHS), Inc. was one of the largest department store retailers in the United States. At the end of fiscal 1989, the company operated 113 stores in the hubbelt regions of the country. The company's divisions included The Broadway, with 43 stores in Southern California and stores in the northwest, and Emporium, with 22 stores in the greater San Francisco Bay Area.

On October 17, 1989, a 7.1 Richter scale earthquake caused significant amounts of property damage to the San Francisco Bay Area. This was the largest earthquake in the Bay Area since the quake of 1906 destroyed much of San Francisco. California is lined with many active earthquake faults. Hundreds of small earthquakes occur each year throughout the state.

The Emporium division of CHHS suffered extensive damage as a result of the October 17 earthquake. Twelve of the twenty-two stores were closed for varying periods of time, with the Oakland store hardest hit. In total, uninsured damage was \$27.9 million, \$16.5 million after tax benefits.

For the fiscal year ending August 4, 1990, CHHS reported an after-tax loss of \$9.47 million before considering the earthquake loss. Total revenues for the year were \$2.857 billion.

Required:

Assume that you are the CHHS controller. The chief financial officer of CHHS has asked you to prepare a short report, 1-2 pages in length, giving your recommendation as to the proper reporting of the earthquake damage loss in the income statement for the year ending August 4, 1990. Explain why your recommendation is appropriate. Be sure to include in your report any references to authoritative pronouncements that support your recommendation.

After a decade of consistent income growth, the Carson Corporation experienced a before-tax loss of \$11.4 million in 2000. The loss was primarily due to \$11 million in expenses related to a product recall. Carson manufactures excellent equipment, including array machines. The recall was attributable to a design flaw in the manufacture of the company's new line of machines.

The company controller, Jim Dietz, has suggested that the loss should be included in the 2000 income statement as an extraordinary item. "If we report it as an extraordinary item, our income from continuing operations will actually show an increase from the prior year. The stock market will appreciate the continued growth in ongoing profitability and will discount the one-time loss. And our bonuses are tied to income from continuing operations, not net income."

The chief executive officer asked Jim to justify this treatment. "I know we have had product recalls before and, of course, they do occur in our industry," Jim replied, "but we have never had a recall of this magnitude, and we fixed the design flaw and strengthened our quality control procedures."

However, the ethical dilemma faced by Jim Dietz and the company's chief executive officer.

Required:

1. Do you think that the reported details of September 11 constitute an "extraordinary" event?

Yesterday you watched a TV special on the terrorist attacks of September 11, 2001. These attacks resulted in a large loss of life and property. Today in your intermediate accounting class, your professor discussed the measurement and reporting of separately reported items, including extraordinary gains and losses. A classmate asked her if companies that sustained significant losses as a result of the attacks reported those losses as extraordinary items in their income statements. She asked the class to think about it and to formulate an answer for the next class period. She also responded that there is an emerging issue. Firms faced with such losses are being urged to disclose a wide range of information.

Required:

1. Do you think that the reported details of September 11 constitute an "extraordinary" event?
2. Obtain the EITF issues on accounting for the impact of the terrorist attacks. You might gain access through such as AICPA, Financial Accounting Standards Board, or your school library. a. What did the EITF address? b. Why did the EITF address this issue and not the FASB itself?

4. What did your research reveal? What reasons did the EITF provide for its conclusion?

Each of the following situations occurred during 2000 for one of your audit clients:

1. The write-off of inventory due to obsolescence.
2. Discovery that depreciation expenses were omitted by accident from 2000's income statement.
3. The useful lives of all machinery were changed from eight to five years.
4. The depreciation method used for all equipment was changed from the declining-balance to the straight-line method.
5. Ten million dollars face value of bonds payable was repurchased (paid off) prior to maturity resulting in a nominal loss of \$500,000. The company considers the event unusual and infrequent.
6. Restructuring costs were incurred.

7. The Soldwell Company, a manufacturer of shoes, sold all of its retail outlets. It will continue to manufacture and sell its shoes to other retailers. A loss was incurred in the disposition of the retail stores. The retail stores are considered components of the entity.

8. The inventory costing method was changed from FIFO to average cost.

Required:

- For each situation, identify the appropriate reporting treatment from the list below. Consider each event to be material.
 - As an extraordinary item
 - As an other comprehensive income item
 - As a prior-period adjustment
 - As a change in accounting principle
 - As a discontinued operation
 - As a change in accounting estimate
 - As a change in accounting estimate achieved by a change in accounting principle
- Indicate whether each situation would be included in the income statement as continuing operations (CO) or below continuing operations (BC), or if it would appear as an adjustment in retained earnings (RE). Use the format shown below to answer requirements 1 and 2.

| Situation | Treatment (a-g) | Financial Statement Presentation
(CO, BC, or RE) |
|-----------|-----------------|---|
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |

Judgment Case 4-10
Income Statement
Presentation

• See page 203

The following events occurred during 2006 for various audit clients of your firm. Consider each event to be independent and the effect of each event to be material.

- A manufacturing company recognized a loss on the sale of equipment used in its manufacturing operations.
- An automobile manufacturer sold all of the assets related to its financing component. The operations of the financing business can be easily distinguished from the rest of the entity.
- A company changed its depreciation method from the double-declining-balance method to the straight-line method.
- Due to obsolescence, a company engaged in the manufacture of high-technology products incurred a loss on the write-down of inventory.
- One of your clients discovered that 2005's depreciation expense was overstated. The error occurred because of a miscalculation of depreciation for the office building.
- A cosmetics company decided to discontinue the manufacture of a line of women's lipstick. Other cosmetic lines will be continued. A loss was incurred on the sale of assets related to the lipstick product line. The operations of the discontinued line cannot be distinguished from the rest of the cosmetics business.

Required:

Discuss the 2006 financial statement presentation of each of the above events. Do not consider earnings per share disclosures.

Case Study 4-11
Presentation of
Extraordinary
Items and
Discontinued
Operations
in the U.K. and the
United States

• See page 203

Asbury Schweppes is a major global manufacturer of beverages and confectionery located in Great Britain whose products are sold in over 70 countries. Presented below is a recent company income statement.

ASBURY SCHWEPES PLC
Group Profit and Loss Account
For the 52 Weeks Ended 28 December 2003
(in millions of pounds)

| | Exceptional Items | Exceptional Items | Total |
|-----------------------|-------------------|-------------------|-------|
| Turnover | | | |
| Continuing operations | 5,564 | — | 5,564 |
| Acquisitions | 877 | — | 877 |
| | 6,441 | | 6,441 |

| | | | |
|--|-------|-------|-------|
| Operating costs | 5,289 | 5,501 | 5,742 |
| Continuing operations | 754 | 770 | 775 |
| Acquisitions | 98 | 45 | 75 |
| Group operating profit | 1,052 | 231 | 699 |
| Profit on sale of subsidiaries and investments | 51 | | |
| Total operating profit including associated loss on disposal of fixed assets | 1,103 | 231 | 700 |
| Profit on sale of subsidiaries and investments | | | |
| Profit on ordinary activities before interest | 111 | 752 | 9 |
| Interest | 11 | | 6 |
| Profit on ordinary activities before taxes | 122 | 752 | 15 |
| Taxes | 14 | 5 | 1 |
| Profit on ordinary activities | 108 | 12 | 14 |
| Equity minority interests | 4 | | 4 |
| Non-equity minority interests | 1 | | 2 |
| Profit for the financial year | 113 | 12 | 16 |
| Dividends to ordinary shareholders | | | (243) |
| Profit available | | | 14 |

Required

Describe the differences between income statement presentation in the United Kingdom with that of the United States.

Judgment Case 4-12
Management
Incentives for change
• 107

It has been suggested that not all accounting choices are made by management in the best interests of fair and consistent financial reporting.

Research Case 4-11
Changes in accounting
principles
• 107

Required

What considerations can you think of for management's choice of accounting methods?

When a company changes an accounting principle, justification for the change is required in a disclosure note. Quite often, the stated justification is that the new accounting method is a more appropriate way to measure the related economic transaction. However, there are those that feel management makes accounting changes in order to manipulate earnings. Professors Pinsof and Whaley in "The Incidence of Accounting Changes and Characteristics of Firms Making Accounting Changes" investigate accounting changes and possible motivations for making them.

Required

- In your library or from some other source, locate the indicated article in *Accounting Horizons*, June 1994.
- What is the most frequent type of voluntary accounting change?
- What inferences do the authors make about the use of voluntary accounting changes to manipulate earnings and what conclusion do they reach?

Integrating Case 4-14
Balance sheet and
income statement;
Chapters 3 and 4
• 106

Rice Corporation is preparing a statement for external purposes and the bank requires financial statements. Here is the account up to date with the ending balances. Prepare a balance sheet and income statement for the following annual information.

RICE CORPORATION
Balance Sheet
At December 31, 2006
(in thousands)

| | |
|---|----------------|
| Assets | |
| Cash | \$ 275 |
| Marketable securities | 78 |
| Accounts receivable | 481 |
| Inventories | 425 |
| Allowance for doubtful accounts | 51 |
| Property and equipment, net | 80 |
| Total assets | <u>\$1,375</u> |
| Liabilities and Shareholders' Equity | |
| Accounts payable and accrued liabilities | \$420 |
| Notes payable | 200 |
| Common stock | 240 |
| Retained earnings | 495 |
| Total liabilities and shareholders' equity | <u>\$1,375</u> |

PRICE CORPORATION
Income Statement
For the Year Ended December 31, 2004
(\$ in 000s)

| | |
|-------------------------------|---------------|
| Revenues | \$1,560 |
| Expenses: | |
| Cost of sales | 875 |
| Depreciation and amortization | 150 |
| Research and development | 20 |
| Other | 4 |
| Total expenses | 1,049 |
| Net income | <u>\$ 511</u> |

Additional information:

- The company's common stock is traded on an organized stock exchange.
- The investment portfolio consists of short-term investments valued at \$57,000. The remaining investments will not be sold until the year 2005.
- Miscellaneous expense represents the before-tax loss from damages caused by an earthquake. The event is considered to be both unusual and infrequent.
- Notes payable consist of two parts:
 Note 1: \$50,000 face value dated September 30, 2003. Principal and interest at 10% are due on September 30, 2007.
 Note 2: \$1,000,000 face value dated April 30, 2006. Principal is due in two equal installments of \$500,000 plus interest on the unpaid balance. The semi-payments are scheduled for April 30, 2007 and April 30, 2008.
 Interest on both notes has been correctly accrued and is included as accrued liabilities on the balance sheet and selling and administrative expenses on the income statement.
- Selling and administrative expenses include a \$90,000 charge incurred by the company in restructuring some of its operations. The amount of the charge is material.

Required:

Identify and explain the deficiencies in the presentation of the statements prepared by the company's controller. Do not prepare corrected statements. Include in your answer a list of items which require additional disclosure either on the face of the statements or in a note.

Refer to the income statements of *Price Corporation* in Appendix B located at the back of this text.

For more:

- What was the percentage expense or deduction in the company's tax income from 2003 to 2004? From 2004 to 2005?
- Using 2004 data, what is the company's approximate income tax rate?
- Using 2004 data, what is the percentage of net income relative to revenue (margin)?

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs distributed collection, validation, indexing, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. Some foreign companies file voluntarily. Form 10-K is the annual report, or required to be filed on EDGAR. The SEC makes this information available to the Internet.

Required:

- Access EDGAR on the Internet. The web address is www.sec.gov/edgar/sec/edgarsearch/price.html. From Price's interactive site, make the request of accessing data from EDGAR data.
 Search for public company with which you are familiar. Access the most recent 10-K filing. Search and find the financial statements and related notes.
- Answer the following questions related to the company's income statement:
 - Does the company use the single-step or multiple-step format, or a variation?
 - Does the income statement contain any separately reported items in any year presented (discontinued operation or extraordinary item)? If it does, describe the event that caused the item. (Hint: there should be a related disclosure note.)
 - Describe the trend in net income over the years presented.
- Repeat requirements 2 and 3 for two additional companies.

multitask Accounting
software

Reducing costs

■ L04

The online accounting textbook also contains material for use with discussion 4. The case provides an excellent opportunity for class discussion, group projects, and writing assignments. The case, along with Professor's Discussion Material, can be obtained from the Deloitte Foundation at its website: www.deloitte.com/education/case

Case 04-3: Adchem, Inc.

This case concerns the amount and timing of restructuring costs.

CPA SIMULATION 4-1

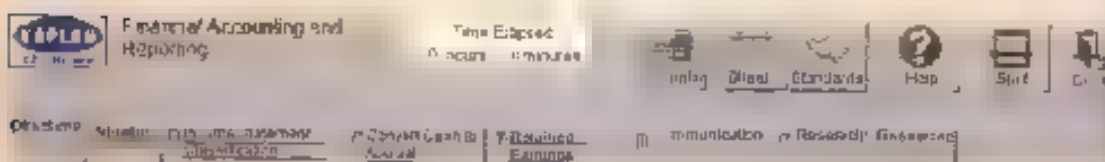
Best Consultants
Financial Statements



Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulations at the test website: www.kaplan.com/cpaexam/edu

The Best Consultants simulation tests your knowledge of: (a) the concept and structure of the income statement, (b) the reporting of discontinued operations and comprehensive income, (c) the difference between cash and accrual income statement items addressed in Chapters 1 and 2, and (d) the transactions that cause a change in reported earnings discussed in Chapters 7 and 19.

As on the CPA exam itself, you will be asked to use skills including a spreadsheet, a calculator, and professional accounting standards. In simulated research, derive conclusions, and communicate conclusions related to these issues in a simulated environment based by the following interactive case:



Specific tasks in the simulation include:

- Converting multiple selected items from a cash to accrual basis.
- Demonstrating your knowledge of the concept and structure of the income statement.
- Understanding the transactions that affect retained earnings.
- Communicating various aspects of the reporting requirements for discontinued operations.
- Researching the disclosure requirements for the presentation of comprehensive income.

5

CHAPTER

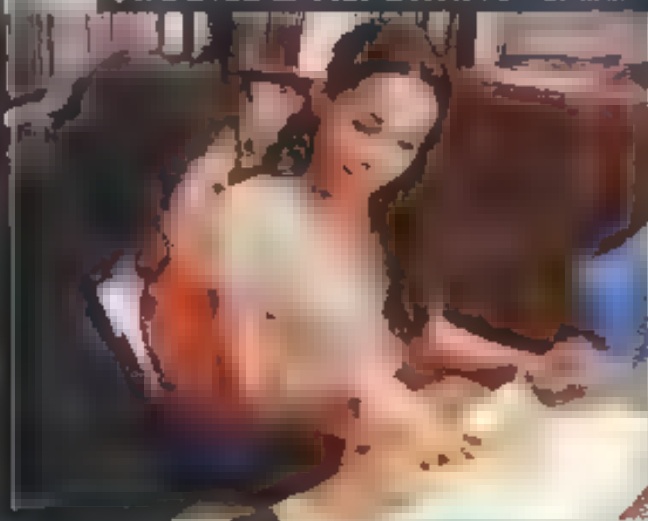
Income Measurement and Profitability Analysis

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Discuss the general objective of the timing of revenue recognition and the two general criteria for measuring precise revenue, and explain why these criteria usually are labelled as a specific point in time.
- LO2 Describe the instalment sales and cost recovery methods of recognising revenue for certain instalment sales and explain the unusual conditions under which these methods might be used.
- LO3 Discuss the implications for revenue recognition of giving customers the right of return.
- LO4 Identify situations that call for the recognition of revenue over time and distinguish between the methods of recognising revenue for long-term contracts.
- LO5 Discuss the revenue recognition issues involving software and franchise sales.
- LO6 Identify and calculate the common ratios used to assess profitability.

FINANCIAL REPORTING CASE



You Don't Have to Be a Rocket Scientist

"Good news! I got the job," she said, closing the door behind her.

You, sister, an aerospace engineer, goes on to explain that she accepted a position at Lockheed Martin Corporation, a world leader in the design, development, manufacture, and servicing of aircraft, spacecraft and launch vehicles, missiles, electronics, and information and telecommunication

systems. She will supervise a long-term government contract beginning Tuesday.

"I got the salary I was asking for too," she continued. "Mr. Watson, my supervisor, who said I'll be getting a bonus tied to the gross profit on the project. I didn't hit the mark. He's in his office, though, that this project will take two and a half years to complete. I hope I don't have to wait that long to get my bonus." Pointing to a page where she's clipped part of a disclosure note, your sister hands you Lockheed's annual report. "I can't believe they wait that long to record income on all these multiyear projects. You're the accountant in the family; is that what this note is telling us?"

Sales and earnings (in part).

Sales and anticipated profits under long-term fixed-price production contracts are recorded on a percentage-of-completion basis.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed at the end. Celebrate your success to the victors provided at the end of the chapter.

- 1 Does your sister have to wait two and a half years to get her bonus? Explain. (page 224)
- 2 How are gross profits recognized using the percentage-of-completion method? (page 225)
- 3 Are there other situations in which revenue is recognized at times other than when a product is delivered? (page 229)

PART A REVENUE RECOGNITION

Revenue is the primary source of funds for a company for the period.

In Chapter 4 we discussed the *nature of income* and its presentation in the income statement. In this chapter we turn our attention to the *measurement* of periodic accounting income. Of primary concern here is timing of revenue recognition. Revenue is an important element in the income statement, but it will be a loss if it is not recognized in the period in which the related revenues are recognized.

Why should the income statement of a company's income statement should report the results of operations only for the time period specified in the report. That is, a one-year income statement should report the company's accomplishments and sacrifices (revenues and expenses) only for that one-year period.¹ Revenue recognition criteria help ensure that a proper cutoff is made each period and that no more than one year's activity is reported in the annual income statement. Revenues reflect positive inflows from activities, activities that generate cash flows by performing these activities over a period of time and can better assess future activities and thus future cash flows.

Our objective, then, is to recognize revenue in the period or periods that the revenue-generating activities of the company are performed. But we also must consider that recognizing revenue presumes that an asset (usually cash) has been received or will be received in exchange for the goods or services sold. Our judgment as to the collectibility of the cash (from the sale of a product or service will, therefore, impact the timing of revenue recognition. Hence, when the timing of performance is unclear, it is deferred by the general guideline for revenue recognition in the real-world principle.

The real-world principle requires that two criteria be satisfied before revenue can be recognized over time:

1. The earnings process is judged to be complete or virtually complete (the *earnings process* refers to the activity or activities performed by the company to generate revenue).
2. There is reasonable certainty as to the collectibility of the asset to be received (usually cash).

The first criterion indicates that revenue is recognized at a point in time at or near the end of the earnings process. We sometimes encounter situations when strictly adhering to this criterion would violate our overriding objective of recognizing revenue in the period or periods that the revenue-generating activities are performed. Later in this chapter we discuss situations when revenue is recognized over time, rather than at one particular point in time.

Even with this guideline, revenue recognition continues to be a controversial issue. For instance, Former SEC Chairman Arthur Levitt identified revenue recognition as a popular way for companies to manage their earnings, primarily prematurely.

Premature revenue recognition reduces the quality of reported earnings. In fact, some companies have been forced to revise earnings numbers due to a restatement of revenues. The case of Kmart is a prime example. In January 2003, the company announced that it would be restating its earnings for the last three quarters of fiscal 2004. Investors were already alarmed by the recent filing of a lawsuit that alleged the company routinely

CBS MARKETWATCH

If corporate information is not properly released, investors are left wondering if the related subsidiary has been properly accounted for. The case of Kmart is a prime example.

Source: CBS MarketWatch.

Financial statements of a company for the period.

¹Deborah Solomon, "Why investors should fear the man," *CNN Market Watch*, (May 30, 1991).

AFHURLEVITT, JR.
 returned questions to boost
 earnings manufacturing the
 no signs of revenue. There
 used a bottle of wine when
 a bottle was the only one
 available before it was
 fully 3,000 units. Participants
 or doing this with their
 words.

perked sales by doubling shipments to wholesale customers at the end of the quarter. In the two-day period following the announced restatement, the company's stock price dropped over 20% in value.

As part of its crackdown on earnings management, the SEC issued *Staff Accounting Bulletin No. 101*, summarizing the new view of revenue. The Bulletin provides additional details on how companies should treat revenue when it is deferred.

1. Delivery has occurred, or services have been rendered.
2. Delivery has occurred, or services have been rendered.

3. The seller's price to the buyer is fixed or determinable.
4. Collectibility is reasonably assured.

In addition to these four criteria, *SAB 101* also poses a number of revenue recognition questions relating to each of the criteria. The questions provide the facts of the scenario and require the SEC offers its interpretive response. These responses and supporting explanations provide guidance to companies with similar revenue recognition issues. For example, the opening question relates to the delivery and performance criteria:

SEC Staff Accounting Bulletin (SAB) No. 101 provides general and specific guidelines for revenue recognition.

Fact: Company A receives purchase orders for products it manufactures. At the end of its fiscal quarter, customers may not yet be ready to take delivery of the products for various reasons. These reasons may include, but are not limited to, a lack of available space for inventory, busy schedules that prevent frequent inventory in their distribution channel, or delays in customers' production schedules.

Question: May Company A recognize revenue for the sale of its products once it has completed manufacturing, shipped the inventory to the customer, and the customer has received the goods? May a company recognize revenue for the sale of its products if it ships the goods to the customer, but the customer has not yet received the goods, and the company has no control over the goods until delivery to a warehouse?

How would you answer these questions? The SEC's response is generally, no. It believes that delivery generally is not considered to have occurred unless the customer has taken title and assumes the risk and rewards of ownership of the specific products in the customer's possession or sales agreement. Typically this occurs when a product is delivered to the customer's delivery site.¹

Soon after *SAB No. 101* was issued, many companies changed their revenue recognition practices. In most cases, the change resulted in a deferral of revenue recognition. As a case example, consider the change made by **Drews & Sharpe Manufacturing Company**, a manufacturer of technology products, described in a disclosure note, displayed in **Graphic 5-1**.

5. Accounting Change (in part)

The company adopted the Staff Accounting Bulletin No. 101 (SAB 101) and resulted in a change in its revenue recognition policy. The company previously recognized revenue for products shipped and delivered to the customer. Effective as of January 1, 2001, the company will recognize revenue for products shipped and delivered to the customer only when the customer has accepted the products.

GRAPHIC 5-1

Disclosure of Change in Revenue Recognition Policy: Brown & Sharpe Manufacturing Company

¹ See, e.g., The Financial Times, 270 (N. Am. ed.) October 1999, p. 14.

² See, e.g., Financial Statements, Staff Accounting Bulletin No. 101 (Washington, DC: SEC, December 1999).

³ See, e.g.,

ETHICAL DILEMMA: *Revenue Recognition: A Dilemma*

The Peterson Parts Corporation manufactures automobile parts. The company has reported a profit every year since the company's inception in 1980. Management prides itself on this accomplishment and believes one important contributing factor is the company's incentive plan that rewards top management a bonus equal to a percentage of operating income if the operating income goal for the year is achieved. However, 2006 has been a tough year, and prospects for attaining the income goal for the year are bleak.

Tony Smith, the company's chief financial officer, has determined a way to increase December sales by an amount sufficient to boost operating income over the goal for the year and earn bonuses for all top management. A reputable customer ordered \$120,000 of parts to be shipped on January 15, 2007. Tony told the rest of top management: "I know we can get that order ready by December 31 even though it will require some production line overtime. We can then just leave the order on the loading dock until shipment. I see nothing wrong with recognizing the sale in 2006, since the parts will have been manufactured and we do have a firm order from a reputable customer." The company's normal procedure is to ship goods F.O.B. destination and to recognize sales revenue when the customer receives the parts.

In requiring customer acceptance as part of the agreement, revenue recognition is delayed until this part of the earnings process is completed. Many of the changes in revenue recognition in companies made in response to *SSA No. 18* are related to service revenue. We discuss some of these later in the chapter.

The central issue in most decisions concerning when to record revenue is judging when the earnings process is substantially complete and whether it is reasonably certain that a determinable amount of cash is collectible. Sometimes this decision is straightforward, as when a sale is made on credit. Other times, however, the decision is more difficult. For example, a company may be given to whether (a) a customer in a risky transaction will actually pay, (b) a customer will exercise its right to return a purchased product, (c) it is reasonable to wait several years to recognize revenue on a long-term project, or (d) other atypical situations should justify altering the timing of revenue recognition. We'll discuss these variations on the timing decision in Part A of this chapter. First, though, might be helpful to look at the overview of the variations provided in Graphic 5-2.

In January 2002, the FASB disseminated a proposal for a new project addressing revenue recognition. The board is partnering in the International Accounting Standards Board to develop a comprehensive statement on revenue recognition that is conceptually based and framed in terms of principles. At the time this text was published, no new pronouncement had yet resulted from the project.

Completion of the Earnings Process within a Single Reporting Period

WHEN COLLECTIBILITY IS REASONABLY CERTAIN

Consider the timing of revenue recognition for a typical manufacturing company that sells its products on credit. Usually the buyer is given a length of time, say 30 days, to pay for the goods after they have been delivered. Graphic 5-3 shows several alternative points in time during the earnings process that could be considered the critical event for revenue recognition. Smith has pointed out that revenue is actually earned throughout the earnings process. The critical event is the point in time when the realization principle is satisfied.¹

While revenue usually is earned during a period of time, revenue often is recognized at one specific point in time when both revenue recognition

¹"Revenue Recognition," *Proposal for a New Agenda Paper* (Norwalk, Conn.: FASB, 2002). A project update was provided by the FASB on December 24, 2004.

²See also the *Journal of the American Institute of Certified Public Accountants*, 92 (2002), 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Usually Recognizing Revenue for:

| Nature of the Revenue | Sale of a Product | Sale of a Service |
|--|--|--|
| Substantive completion of the earnings process can be identified with a specific point in time within a single reporting period. | When product is delivered to the customer. | When the key activity is performed. |
| • collectibility of cash is not usually certain | | |
| • collectibility of cash is not usually certain | | |
| • Because payments are typically received in advance | When cash is collected in advance of cost recovery (the bill-to-cash method). | When cash is collected in advance of cost recovery (the bill-to-cash method). |
| • Because revenue is realized when the product is sold and is not subject to return | When an event occurs that makes product sale virtually certain. | Not applicable. |
| • Because the product sold is not on return or warranty | When the customer sells the product to the ultimate consumer. | Not applicable. |
| Substantive completion of the earnings process occurs over more than one reporting period: | | |
| • Revenue is dependent on work in progress that is not yet complete | Each period during the earning process (e.g., long-term construction contract) in proportion to the percentage of completion (usually the fraction of costs incurred to date). | Each period during the earning process (e.g., long-term contract) in proportion to the percentage of performance (usually the fraction of work completed). |
| • Revenue is dependent on work in progress that is not yet complete | At the completion of the project. | Not applicable. |
| Industry-specific revenues: | | |
| Franchise sales | | |
| • Franchise fees | Not applicable. | When initial services are substantially performed. |
| • Continuing franchise fees | Not applicable. | As services are performed. |
| Computer software sales | As each software component (e.g., new product upgrade) is delivered. | As each service component (e.g., customer support) is delivered. |

GRAPHIC 5-2

Revenue Recognition

We usually recognize revenue at or near the completion of the earnings process unless collectibility is an issue.

Sometimes, it is more meaningful to recognize revenue over time in proportion to the performance of the activity.

Materials
purchasedProduction
beginsProduction
in processProduction
endsProduct
deliveredCash is
collected

GRAPHIC 5-3

Earnings Process for a
Typical Manufacturing
Company

The product delivery date occurs when legal title to the goods passes from seller to buyer. It occurs either on the date the product is shipped from the seller's facility or when the goods actually are received by the buyer depending on the terms of the sales agreement. If the

...the seller is responsible for shipping and legal title does not pass until the goods arrive at the customer's location.⁸

Let's consider the date production ends. At that point, it might be said that the earnings process is virtually complete. After all, the majority of the costs that must be expended to generate revenue have been incurred. The product has been produced and the remaining tasks are to sell the product and collect the cash.

However, at this point there usually exists significant uncertainty as to the collectibility of the asset to be received. We don't know if the product will be sold or the selling price or the buyer if eventually sold. Because of these uncertainties, revenue recognition usually is delayed until the point of product delivery. At that point, we know the product has been sold, the price, and the buyer. The only remaining uncertainty involves the ultimate cash collection.

In addition, at the point of delivery, legal title to the goods is transferred. A critical element of the contract between buyer and seller—product delivery—is now fulfilled and the seller's obligation is discharged. Sometimes, a sales agreement requires additional, important performance steps to be performed by the seller. In this case, the earnings process is not virtually complete until those steps are performed. Graphite 5-1 on page 213 illustrates a situation where the seller, H & Sharpe, delays revenue recognition beyond delivery of machines until the performance of the machines has been accepted by the buyer. Customer acceptance is an important part of the earnings process.

is deemed critical to the earnings process. In this case, all revenue and costs are deferred until this final activity has been performed. For example, a moving company will pack, load, transport, and deliver household goods for a fixed fee. Although packing, loading, and transporting all are important to the earning process, delivery is the culminating event of the earnings process. So, the entire service fee is recognized as revenue after the goods have been delivered. FedEx recognizes revenue in this manner. The Company's Summary of Significant Accounting Policies disclosure note indicates that "Revenue is recognized upon delivery of shipments." As with the sale of product, estimates of uncollectible amounts must be made for service revenue provided to customers on a credit basis.

United Airlines (and other major airlines) provide another example. Do you ever use miles to your frequent flyer mileage program by accumulating miles with a credit card or long-distance phone service? For example, you can obtain a Citibank credit card and for one frequent flyer mile on United Airlines for every \$1 charged on the card. Or if you use MCI long-distance, you can earn one mile for every \$1 in long-distance charges. When you accumulate enough miles, you earn a free flight on United. Citibank and MCI must recognize revenue for the frequent flyer miles it gives its customers. So, when does United Airlines recognize revenue for the miles it provides to customers of Citibank and MCI? Until recently, United recognized revenue as the miles were sold. But is United actually selling a product—miles? No, it is providing a service by flying customers of Citibank and MCI. The SEC's *Staff Accounting Bulletin No. 107* discussed earlier motivated United to change its revenue recognition policy for the sale of mileage. Graphite 5-4 shows a disclosure describing the change in policy.

United is recognizing "a portion of revenue" (probably a significant portion) when the final critical activity takes place, specifically "when the transportation is provided." While specifically mentioned the nondeferred portion of the revenue is recognized earlier to provide with, and offset, the costs of administering the program.

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Accounting Changes (in part)

| Accounting Change | Effect on Net Income | Effect on Retained Earnings |
|--------------------------------|----------------------|-----------------------------|
| Change in accounting principle | Not applicable | Not applicable |
| Change in accounting estimate | Not applicable | Not applicable |
| Change in accounting policy | Not applicable | Not applicable |
| Change in accounting method | Not applicable | Not applicable |
| Change in accounting principle | Not applicable | Not applicable |
| Change in accounting estimate | Not applicable | Not applicable |
| Change in accounting policy | Not applicable | Not applicable |
| Change in accounting method | Not applicable | Not applicable |

GRAPHIC 5-4

Disclosure of Change in Revenue Recognition Policy—United Airlines Inc.

SIGNIFICANT UNCERTAINTY OF COLLECTIBILITY

Measuring revenue at a specific point in time as described in the previous section assumes we are able to make reasonable estimates of amounts due from customers that potentially will be collectible. For product sales, this also includes amounts not collectible due to customers returning the products they purchased. Otherwise, we would violate one of the requirements of the revenue recognition principle we discussed earlier that there must be reasonable certainty as to the collectibility of cash from the customer. Now, in this section, we discuss a few situations when uncertainties could cause a delay in recognizing revenue from sale of a product or service. One such situation occasionally occurs when products or services are sold on an installment basis.

Installment Sales. Customers sometimes are allowed to pay for purchases in installments over a long period of time. Many large retail stores, for instance, such as Sears and J.C. Penney sell certain products on an installment plan. Increasing the length of time allowed for payment usually increases the inevitable uncertainty about whether the store actually will collect a receivable. Is the uncertainty sufficient in an installment sale to cause Sears or J.C. Penney to delay recognizing revenue and related expenses beyond the point of sale? Usually, it's not. In most situations, the increased uncertainty concerning the collection of cash from installment sales can be accommodated satisfactorily by estimating uncollectible amounts. If, however, the installment sale creates significant uncertainty concerning cash collection, it's impossible to make a reasonable assessment of future bad debts, then revenue and expense recognition should be delayed. For example, real estate sales often are made on an installment basis with relatively small down payments and long payment periods, perhaps 25 years or more. These payment characteristics, combined with the general speculative nature of many of these transactions, may translate into significant uncertainty concerning the collectibility of the installment receivable.¹⁰ In fact, SFAS No. 66 requires that the installment method (discussed below) be applied to a retail installment sale that meets certain criteria.

When extreme uncertainty exists regarding the ultimate collectibility of cash, we delay revenue and expense recognition until we are certain to receive the cash. The installment method is an accounting method that recognizes that there is uncertainty about the ultimate collectibility of cash from installment sales. As with sales of houses, Sears and J.C. Penney sell land for residential, commercial, and other uses. Exhibit 5-3 shows the company's revenue recognition disclosure note included with recent annual financial statements. The note indicates that the preferred method is to recognize revenue upon delivery (full accrual method), but that in certain circumstances, one of these two alternative methods could be used.

Installment sales method. To deal with the uncertainty of collection, the installment method recognizes revenue and costs only when cash payments are received. Each payment is assumed to be composed of two components: (1) a partial recovery of the cost of the item sold and (2) a gross profit component. These components are determined by the gross profit percentage applicable to the sale. For example, if the gross profit percentage

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A retail store that sells products on an installment basis should recognize revenue and related expenses when the cash is received.

The installment method is used when there is significant uncertainty about the ultimate collectibility of cash from installment sales.

The installment method is used when there is significant uncertainty about the ultimate collectibility of cash from installment sales.

The installment method is used when there is significant uncertainty about the ultimate collectibility of cash from installment sales.

Source: J.C. Penney

GRAPHIC 5-5

Disclosure of Revenue Recognition Policy—
Rouse Company

Revenue recognition and related matters (in part)

Revenues from land sales are recognized using the full accrual method provided that various criteria relating to the terms of the transactions and any subsequent involvement by us with the land sold are met. Revenues from other land sales that do not meet the established criteria are deferred and recorded when the sale is complete or using the installment method or recovery methods as a percentage of the cash collected.

(gross profit ÷ sales price) of 40%, then 60% of each dollar collected represents cost recovery and the remaining 40% is gross profit. Consider the example in Illustration 5-1.

ILLUSTRATION 5-1
Installment sales
Method

On November 1, 2006, the Berman Company, a real estate developer, sold a lot of land to \$800,000. The sales agreement with the purchaser requires five payments of \$200,000 plus interest on each November 1 beginning November 1, 2006. The land cost \$560,000 to develop. The company's fiscal year ends on December 31.

Gross profit on installment sales method

The gross profit of \$240,000 (\$800,000 - \$560,000) represents 30% of the sales price (\$240,000 ÷ \$800,000). The collection of cash and the recognition of gross profit under the installment method are summarized below. We ignore the collection of interest charges and the recognition of interest revenue to concentrate on the collection of the \$800,000 sales price and the recognition of gross profit on the sale.

| Date | Cash Collected | Cost Recovery (70%) | Gross Profit (30%) |
|---------------|------------------|---------------------|--------------------|
| Nov. 1, 2006 | \$200,000 | \$140,000 | \$60,000 |
| Nov. 1, 2007 | 200,000 | 140,000 | 60,000 |
| Nov. 1, 2008 | 200,000 | 140,000 | 60,000 |
| Nov. 1, 2009 | 200,000 | 140,000 | 60,000 |
| Totals | \$800,000 | \$560,000 | \$240,000 |

This illustrates that the gross profit recognized in a period will be equal to the gross profit percentage multiplied by the period's cash collection. The following journal entries are recorded (interest charges ignored).

Inventory is credited for the portion of the installment sale price that is allocated to the cost of the land sold. The difference is a deferred gross profit.

November 1, 2006

| | | |
|----------------------------|---------|---------|
| Installment receivables | 800,000 | |
| Inventory | | 560,000 |
| Deferred gross profit | | 240,000 |
| To record installment sale | | |

The first entry records the installment receivable and the reduction of inventory. The difference between the \$800,000 selling price and the \$560,000 cost of sales represents the gross profit on the sale of \$240,000. As it will be recognized only as collections are made, it is recorded in an account called *deferred gross profit*. This is a contra account to the installment receivable. It will be reduced to zero as the payments are received.¹

As payments are received, the installment receivable is reduced.

| | | | |
|---------------------------|---------|---------|--------|
| Installment receivables | 200,000 | | DEBIT |
| Deferred gross profit | | 200,000 | CREDIT |
| To record cash collection | | | |

That is the end of the period. The following adjustment is required (if necessary):

| | | | |
|-----------------------|---------|---------|--------|
| Deferred gross profit | 200,000 | | DEBIT |
| To installment sales | | 200,000 | CREDIT |

The revenue on installment sales is recognized as cash is collected.

November 1, 2006

| | | |
|---|---------|---------|
| Debit | | Credit |
| | 400,000 | |
| Installment receivables | | 200,000 |
| To cash (the first installment sale) | | |
| Deferred gross profit | 400,000 | |
| Net 2006 gross profit | | 400,000 |
| To recognize gross profit from installment sale | | |

The second set of entries records the collection of the first installment and recognizes the gross profit component of the payment, \$400,000. Journal entries to record the remaining three payments are identical.

At the end of 2006, the balance sheet would report the following:

| | |
|-------------------------------|------------------|
| Installment receivables | \$400,000 |
| Less: Deferred gross profit | (180,000) |
| Installment receivables (net) | <u>\$220,000</u> |

The net amount of the receivable reflects the portion of the remaining payments that represents cost recovery ($70\% \times \$400,000$). The installment receivables are classified as current assets if they will be collected within one year or within the company's operating cycle (if longer); otherwise, they are classified as noncurrent assets.

The income statement for 2006 would report a gross profit from installment sales of \$400,000. Sales and cost of goods sold usually are not reported in the income statement, justifying the gross profit. But if total installment sales are significant, the 2006 income statement in this illustration would report sales of \$200,000 and cost of goods sold of \$400,000.

ADDITIONAL CONSIDERATION

We discuss the problem of accounting for bad debts in significant depth in Chapter 7. However, bad debts related to receivables or sales accounted for using the installment method create a unique problem. Assume that in the example described in Illustration 11-1, the Diamond Corporation collected the first payment as the customer was unable to make the remaining payments. Typically the seller would repurchase the item sold and make the following journal entry:

| | | |
|------------------------|---------|---------|
| Debit | | Credit |
| Inventory | 420,000 | |
| Loss on repossession | 60,000 | |
| Installment receivable | | 480,000 |

The entry removes the receivable and the remaining deferred gross profit and records the repurchased item as an inventory account. This entry assumes that the item's current fair value is equal to the net receivable of \$420,000 (the item's fair value at the time of repossession is less than \$420,000; a loss on repossession is recorded, debited).

Cost recovery method. In situations where there is an extremely high degree of uncertainty regarding the ultimate cash collection on an installment sale, an even more conservative approach, the cost recovery method, can be used. This method defers all gross profit recognition until the cost of the item sold has been recovered. The gross profit recognition

When payments are received, the seller must allocate the cash received to the cost of the item sold and the gross profit. The gross profit is recognized only when the cost of the item sold has been recovered.

PERSPECTIVE



Many countries follow the U.S. practice of recognizing revenue on installment sales at date of sale unless the installment sale creates a situation where there is significant uncertainty concerning cash collection, in which case revenue and expense recognition are delayed. There are, however, some countries where accounting procedures do not differentiate between installment and other credit sales.

The cost recovery method recognizes gross profit only when all installment payments have been received.

Gross profit recognition, cost recovery method

pattern applying the cost recovery method to the Belmont Corporation situation used in Illustration 4-1 is shown below.

| Date | Cash Collected | Cost Recovery | Gross Profit |
|--------------|------------------|------------------|------------------|
| Nov. 1, 2006 | \$200,000 | \$200,000 | \$ -0- |
| Nov. 1, 2007 | 200,000 | 200,000 | 0 |
| Nov. 1, 2008 | 200,000 | 160,000 | 40,000 |
| Nov. 1, 2009 | 200,000 | —0— | 200,000 |
| Total | \$800,000 | \$560,000 | \$240,000 |

The journal entries using this method are similar to those by the installment sales method except that \$40,000 in gross profit is recognized in 2008 and \$200,000 in 2009.

The cost recovery method recognizes gross profit only when all installment payments have been received.

November 1, 2006
 Installment receivables 200,000
 Inventory
 Debit gross profit 560,000
 To record installment sale 240,000

November 1, 2006, 2007, 2008, and 2009
 Cash 200,000
 Installment receivables 200,000
 To record cash collection from installment sale

November 1, 2006 and 2007
 No entry for gross profit

November 1, 2008
 Deferred gross profit 40,000
 Realized gross profit 40,000
 To recognize gross profit from installment sale

November 1, 2009
 Deferred gross profit 200,000
 Realized gross profit 200,000
 To recognize gross profit from installment sale

When payment is received, the cost recovery method recognizes gross profit.

CONCEPT REVIEW EXERCISE

INSTALLMENT SALES

Bontwright Implements, Inc., manufactures and sells farm machinery. For most of its sales, revenue and cost of sales are recognized at the delivery date. In 2006, it sold a cotton baler to a new customer for \$100,000. The cost of the machinery was \$60,000. Payment will be made in five annual installments of \$20,000 each, with the first payment due in 2006. Bontwright usually does not allow its customers to pay in installments. Due to the unusual nature of the payment terms and the uncertainty of collection of the installment payments, Bontwright is considering alternative methods of recognizing profit on this sale.

Required

Ignoring interest charges, prepare a table showing the gross profit to be recognized from 2006 through 2010 on the sale using the following three methods.

1. Point-of-delivery revenue recognition
2. The installment sales method
3. The cost recovery method

| | Point of Delivery | Installment Sales Method
(40% × cash collection) | Cost Recovery Method | SOLUTION |
|--------|-------------------|---|----------------------|----------|
| 1996 | \$40,000 | \$ 8,000 | \$ -0- | |
| 1997 | -0- | 8,000 | -0- | |
| 1998 | -0- | 8,000 | -0- | |
| 1999 | -0- | 8,000 | 20,000 | |
| 2000 | -0- | 8,000 | 20,000 | |
| Totals | \$40,000 | <u>\$40,000</u> | <u>\$40,000</u> | |

Right of Return. Retailers usually give their customers the right to return merchandise if there are no sales restrictions. Even though the right to return merchandise exists, revenues and expenses can be appropriately recognized at point of delivery. Based on past experience, a company usually can estimate the returns that will result for a given volume of sales. These estimates are used to reduce both sales and cost of goods sold in anticipation of returns. The purpose of the estimates is to avoid overstating gross profit in the period of sale and understating gross profit in the period of return. The specific accounting treatment for sales returns is illustrated in Chapter 7, in conjunction with discussing the valuation of accounts receivable.

■ LOS

Because the return of merchandise can retroactively negate the benefits of having made a sale, the seller must meet certain criteria before revenue is recognized in situations when the right of return exists. The most critical of these criteria is that the seller must be able to make reliable estimates of future returns.¹ In certain situations, these criteria are not satisfied at the point of delivery of the product. For example, manufacturers of semiconductors like Intel Corporation and Motorola Corporation usually sell their products through independent distributor companies. Economic factors, competition among manufacturers, and rapid obsolescence of the product motivate these manufacturers to grant the distributors the right of return if they are unable to sell the semiconductors. So, revenue recognition often is deferred beyond the delivery point to the date the products actually are sold by the distributor to an end user.

As an example, the disclosure note shown in Graphic 5-6 appeared in a recent annual report of Intel Corporation.

Revenue Recognition

Revenue is recognized when the product is sold to the end user. Revenue is not recognized when the product is sold to a distributor or when the product is sold to a distributor and the distributor has the right of return. Revenue is recognized when the product is sold to a distributor and the distributor has the right of return and the distributor has sold the product to the end user.

Graphic 5-6

Disclosure of Revenue Recognition Policy—Intel Corporation

For Intel, the event critical to revenue recognition is *not* the delivery of the product to the buyer but the wholesale sale of the product by the buyer (the distributor company) to an end user.

Any time a company recognizes revenue at a point other than the point of delivery, the revenue recognition method used is disclosed in the summary of significant accounting policies. Intel's disclosure note is an example. Graphic 5-7 is a disclosure note from a recent financial statement of AMDahl Corporation, a manufacturer of mainframe computers. Here is another example:

Notes: Revenue Recognition (in part)

Revenue on equipment sales is generally recognized when equipment has been shipped, title and risk of loss arrangements have been completed.

Graphic 5-7

Disclosure of Revenue Recognition Policy—AMDahl Corporation

¹ See, for example, *International Financial Reporting Standards*, paragraph 18, *Revenue Recognition*, which states: "Revenue should be recognized when it is probable that the economic benefits will flow to the entity and the amount can be measured reliably."

As the note indicates, revenue is delayed beyond the point of product delivery. Amisahl waits until the product has been properly installed and financing has been arranged by the buyer. Why does Amisahl delay revenue recognition? Until the product has been installed and financing arranged, there is a high degree of uncertainty concerning the possibility the product might be returned. Also, installation is an important part of the agreement between Amisahl and its customers.

Consignment Sales. Sometimes a company arranges for another company to sell its product under consignment. The “consignor” physically transfers the goods to the other company, the consignee, but the consignor retains legal title. If the consignee can’t find a buyer within an agreed-upon time, the consignee returns the goods to the consignor. However, if a buyer is found, the consignee retains the selling price (less commission and approved expenses) to the consignor.

Because the consignor retains the risks and rewards of ownership of the product until the consignee sells the goods, the consignor does not recognize sales revenue and related expenses until the consignee sells the goods and title passes to the eventual customer. Of course, that means goods on consignment are still part of the consignor’s inventory. As an example, let’s look at Intuit, Inc., a software business, and Financial Edge, Inc., a software business for small businesses, accounting professionals and consumers. Its flagship products include QuickBooks and TurboTax. Some of the company’s product is sold using consignment arrangements. Graphic 3-8 shows a portion of their revenue recognition disclosure note that was included in a recent annual report.

GRAPHIC 3-8
Disclosure of Revenue
Recognition Policy
Intuit, Inc.

Product Revenue (in part)
We sell our software revenue from sales of our software licenses, which are sold on a non-exclusive basis. The revenue is recognized when the software is sold to the customer. For software sold on a consignment basis, revenue is recognized when the software is sold to the customer. For software sold on a consignment basis, revenue is recognized when the software is sold to the customer.

Up until now, we’ve focused on revenue-generating activities in which some specific event (e.g., delivery, collection, product performance, and resale) indicates that the earnings process is substantially completed and significant uncertainties have been avoided, prompting us to recognize revenue and related expenses. We now turn our attention to situations in which it’s desirable to recognize revenue over more than one reporting period. Before a specific event indicates the earnings process is substantially completed,

Completion of the Earnings Process over Multiple Reporting Periods

Revenue recognition at a single point in time, when an earnings process is virtually complete, is inappropriate for certain types of service revenue activities and also, usually, for long-term contracts.

SERVICE REVENUE EARNED OVER TIME

In a previous section we saw that many service activities encompass some final activity that is deemed critical to the earnings process. In these cases, we recognize revenue when that activity occurs. However, in many instances, service revenue activities occur over extended periods and recognizing revenue at any single date within that period would be inappropriate. Instead, it’s more meaningful to recognize revenue over time in proportion to the performance of the activity.

As an example, consider the revenue a property owner earns when renting office space. If a landlord charges a tenant \$ 2,000 in rent for the upcoming year, it would seem logical to recognize \$ 1,000 of rent revenue each month over the one-year period (i.e., straight-line method) since services performed are similar over the period. The landlord recognizes the

Service revenue often is recognized over time, in proportion to the amount of service performed.

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The percentage-of-completion method is used when a contract is long-term and the results of the contract can be determined during the term of the period.

income from the project are recognized in the period in which the project is completed; no revenues or expenses are reported on the income statements of earlier reporting periods in which much of the work may have been performed. The income should be viewed as a measure of the judgment of the preparer. The use of the completed contract method for long-term contracts is not helpful in providing information for decision makers. Clearly, the financial statements prepared using the completed contract method do not fairly report each period's accomplishment when a project spans more than one reporting period. Much of the earnings process is far removed from the point of delivery.

The percentage-of-completion method of expense recognition for long-term contracts is also problematic. This method recognizes revenue and expenses in each period by allocating a share of the project's expected revenues and expenses to each period in which construction process occurs. At the end of the reporting period, although the contract usually specifies total revenues, the project's expenses are not known until completion. Consequently, it is necessary for a company to estimate the project's future costs at the end of each reporting period to estimate total gross profit to be earned on the project.

Illustration 5-2 provides information to compare accounting for long-term contracts using the completed contract and percentage-of-completion methods.

ILLUSTRATION 5-2 Completed Contract and Percentage-of-Completion Methods Compared

At the beginning of 2006, the Harding Construction Company received a contract to build an office building of \$5 million. The project is estimated to take three years to complete. As a condition of the contract, the company will bill the owner in installments over the next years on the basis of the information related to the contract as follows:

| | 2006 | 2007 | 2008 |
|---|--------------------|--------------------|--------------------|
| Construction costs incurred during the year | \$1,500,000 | \$1,000,000 | \$1,600,000 |
| Construction costs incurred in prior year | 0 | 500,000 | 2,500,000 |
| Cumulative construction costs | \$1,500,000 | \$2,500,000 | \$4,100,000 |
| Estimated costs to complete at end of year | 2,500,000 | 1,500,000 | 0 |
| Total estimated and actual construction costs | <u>\$4,000,000</u> | <u>\$4,000,000</u> | <u>\$4,100,000</u> |
| Billings made during the year | \$1,200,000 | \$2,000,000 | \$5,000,000 |
| Cash collections during year | 1,000,000 | 1,400,000 | 2,600,000 |

Construction costs include the labor, materials, and overhead costs directly related to the construction of the building. Notice that the total of estimated and actual construction costs changes from period to period. Overestimations are typical in long-term contracts where costs are estimated, requiring periodic revisions.

Completed Contract Method. With both the completed contract and percentage-of-completion methods, all costs of construction are recorded in an asset account called construction in progress. This account is equivalent to the asset work-in-process in order in a manufacturing company. For the completed contract method, no revenues or expenses related to the project are recognized until 2008. Construction in progress was \$0 on the balance sheet at the end of 2006 and 2007. At the end of 2008, the balance was \$4,100,000 when the project is completed in 2008. This asset is then "sold" and revenue of \$5,000,000 (and cost of construction, similar to cost of goods sold) of \$4,100,000 (gross profit of \$900,000) are recognized in 2008.

Does this solution capture the reality of the situation? In the contrary, the method suggests that the company on company will not be able to produce any revenue until the third year. For the reason, the percentage-of-completion method is preferable to the completed contract method. It should be used only when lack of dependence is complete or when hazards cause forecast to be doubtful.

The completed contract method is used when a contract is long-term and the results of the contract can be determined during the term of the period.

The completed contract method is used when a contract is long-term and the results of the contract can be determined during the term of the period.

Percentage-of-Completion Method. The percentage-of-completion method recognizes a portion of the estimated gross profit each period based on progress to date. Progress is determined on three factors:

1. The most recent estimate of the project's total cost.
2. The most recent gross profit estimate.

Let's first focus on the calculation of periodic gross profit recognition. We then address the gross profit component's progress-to-date cost assumption to be the project cost divided by *total estimated costs*. This fraction, the *percentage of completion*, is assumed to be a measure of progress. It should be noted that this measure is based on costs and could differ significantly from an estimate of physical progress made by an engineer or architect. Companies use this method, often referred to as the *cost-to-cost method* of calculating a percentage-of-completion, more frequently than estimates of physical progress. In a recent disclosure note shown in Graphic 5-11, SBA Communications is divided it uses the cost-to-cost method "because management considers it and to be the best available measure of progress."

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Progress to date can be estimated as a percentage of the total project cost. This is the cost-to-cost method. It is used by SBA Communications to estimate its gross profit for each period. SBA Communications is divided it uses the cost-to-cost method "because management considers it and to be the best available measure of progress."

Revenue Recognition (in part)

Progress to date is the most recent estimate of the project's total cost divided by the most recent gross profit estimate. This fraction, the percentage of completion, is assumed to be a measure of progress. It should be noted that this measure is based on costs and could differ significantly from an estimate of physical progress made by an engineer or architect. Companies use this method, often referred to as the cost-to-cost method of calculating a percentage-of-completion, more frequently than estimates of physical progress. In a recent disclosure note shown in Graphic 5-11, SBA Communications is divided it uses the cost-to-cost method "because management considers it and to be the best available measure of progress."

GRAPHIC 5-11

Disclosure of Revenue Recognition Policy: SBA Communications Corp.

The objective of determining a percentage of completion is to measure activity or project accomplishment to date. If the cost-to-cost approach does not properly parallel this accomplishment, then another method should be used. For example, the construction of a road might encounter a particularly difficult section of terrain requiring abnormal costs to be incurred without much progress being made on the road. In such a case, the cost-to-cost method might not adequately reflect how much of the project has actually been completed.

Illustration 5-2A shows the calculation of gross profit for each of the years for our Harding Construction Company example.

| | 2006 | 2007 | 2008 |
|--|-------------|-------------|-------------|
| Contract price | \$9,000,000 | \$5,000,000 | \$9,000,000 |
| Actual costs to date | 1,500,000 | 2,500,000 | 4,100,000 |
| Estimated costs to complete | 2,250,000 | 1,500,000 | 0 |
| Total project cost | 3,750,000 | 4,000,000 | 4,100,000 |
| Total gross profit (estimated for 2006 and 2007; actual in 2008): Contract price minus total costs | \$5,250,000 | \$1,000,000 | \$4,900,000 |
| Percentage-of-completion—actual costs to date divided by the estimated total project cost | 40% | 62.5% | 100% |
| Total project gross profit | \$5,250,000 | \$1,000,000 | \$4,900,000 |
| Multiplied by the estimated % of completion | 40% | 62.5% | 100% |
| Gross profit earned to date | \$2,100,000 | \$625,000 | \$4,900,000 |
| Less gross profit recognized in previous periods | 0 | 500,000 | 625,000 |
| Gross profit recognized currently | \$2,100,000 | \$125,000 | \$4,275,000 |

ILLUSTRATION 5-2A

Percentage of Completion Method: Allocation of Gross Profit to Each Period

At the end of each period, the revised project gross profit estimate is multiplied by the revised estimate of the percentage of completion. The result is the estimated gross profit earned from inception to date. The current period's gross profit is calculated by subtracting from this amount the gross profit recognized in previous periods.

Income statements are more informative if the sales revenue and cost components of gross profit are reported rather than the net figure alone. So, the income statement for each year will report the appropriate revenue and cost of construction amounts. For example, in 2006 the gross profit of \$500,000 consists of revenue of \$2,000,000 (40% multiplied by the \$5,000,000 contract price) and \$1,500,000 in cost of construction. In subsequent periods, revenue is calculated by multiplying the percentage of completion by the contract price and less subtracting revenue recognized in prior periods. The cost of construction is the difference between revenue and gross profit. In most cases, cost of construction also equals the construction costs incurred during the period.¹⁰ The table in Illustration 5-2B shows the revenue and cost of construction recognized in each of the three years of our example. Of course, as you can see in this illustration, we could have initially determined gross profit by first calculating revenue and then subtracting cost of construction.

ILLUSTRATION 5-2B

Percentage-of-Completion Method: Allocation of Revenue and Costs of Construction to Each Period

| | | | |
|--|-------------------|-------------|-------------|
| 2006 | | | |
| Revenue recognized | \$5,000,000 (40%) | | \$2,000,000 |
| Cost of construction | | | 1,500,000 |
| Gross profit | | | \$500,000 |
| 2007 | | | |
| Revenue recognized to date (\$5,000,000 (62.5%)) | | \$5,125,000 | |
| Less Revenue recognized in 2006 | | (2,000,000) | |
| Revenue recognized | | | \$1,125,000 |
| Cost of construction | | | 1,200,000 |
| Gross profit | | | \$75,000 |
| 2008 | | | |
| Revenue recognized to date (\$5,000,000 (100%)) | | \$5,000,000 | |
| Less Revenue recognized in 2006 and 2007 | | (1,125,000) | |
| Revenue recognized | | | \$1,875,000 |
| Cost of construction | | | 1,600,000 |
| Gross profit | | | \$275,000 |

A COMPARISON OF THE TWO METHODS—INCOME RECOGNITION

A period-by-period comparison of the gross profit patterns produced by each method of revenue recognition is presented below:

| | Percentage-of-Completion | Completed Contract |
|-------------------------|--------------------------|--------------------|
| Gross profit recognized | | |
| 2006 | \$500,000 | 0 |
| 2007 | 125,000 | 0 |
| 2008 | 275,000 | \$900,000 |
| Total gross profit | \$900,000 | \$900,000 |

Although both methods yield identical gross profit of \$900,000 for the entire three-year period, the timing differs. The completed contract method defers all gross profit to 2008, when

¹⁰Cost of construction does not equal the construction cost incurred during the year when a loss is reported on the entire project. This is illustrated in Illustration 5-2C.

the project is completed. Obviously, the percentage-of-completion method provides a better measure of the company's economic activity and progress over the three-year period. That is why the percentage-of-completion method is preferred, and, as mentioned above, the completed-contract method should be used only in situations where the company is unable to make dependable estimates of future costs necessary to apply the percentage-of-completion method.

Our discussion to this point has concentrated on income recognition. Notice that the accrual method and the cash method have no effect on income recognition. We now turn our attention to the balance sheet effect of accounting for long-term construction contracts.

Balance Sheet Effects Compared. Summary journal entries for both the percentage-of-completion and completed-contract methods are shown in Illustration 5-4 for construction costs, billings, and cash receipts.

Illustration 5-2C Journal Entries: Costs, Billings, and Receipts

| | 2006 | 2007 | 2008 |
|---------------------------------|-----------|-----------|-----------|
| Debit Construction in Progress | 500,000 | 1,200,000 | 600,000 |
| Credit Construction Costs | 1,200,000 | 400,000 | 600,000 |
| Debit Construction Costs | 1,200,000 | 2,200,000 | 7,800,000 |
| Credit Construction in Progress | 500,000 | 2,200,000 | 800,000 |
| Debit Construction Billings | 600,000 | 900,000 | 2,600,000 |
| Credit Accounts Receivable | 600,000 | 900,000 | 2,600,000 |
| Debit Cash | | | |
| Credit Construction Billings | | | |

Note that periodic billings are credited to billings on construction contracts. This account is a contra account to the asset construction in progress. At the end of each period, the balances in these two accounts are compared. If the net amount is a debit, it is reported in the balance sheet as an asset. Conversely, if the net amount is a credit, it is reported as a liability.¹⁸

A debit balance essentially represents an unbilled receivable. The construction company is earning construction costs and recognizing gross profit using the percentage-of-completion method for which it will be paid by the buyer. If the construction company bills the buyer an amount exactly equal to these costs (and profits recognized), then the accounts receivable balance properly reflects the claims of the construction company. If, however, the amount billed is less than the costs incurred plus profits recognized, the difference represents the contra

balance. On the other hand, if the amount billed exceeds the costs incurred (plus profits recognized), then the overbilled accounts receivable overstate the amount of the claim to cash until it has been paid and must be reported as a liability. This is similar to the situation when a customer pays for a product or service in advance. The advance is properly shown as a liability representing the obligation to provide the good or service in the future.

Accounting under each of the methods is precisely the same to this point. But, as explained earlier, gross profit (revenue less cost of construction) is recognized differently by the two approaches. The entries shown in Illustration 5-2D are the additional journal entries required using the percentage-of-completion method to recognize periodic revenue and construction expense and to close the construction contract accounts—construction in progress and billings on construction contracts—and for the completed-contract method at the end of the

the percentage-of-completion method is used, the company must estimate the total cost of the contract at the end of each period. If the estimate is not accurate, the company will have to adjust its income recognition in future periods.

Billings on construction contracts are recorded as a contra account to construction in progress. At the end of each period, the balance in this account is compared to the balance in the construction in progress account. If the net amount is a debit, it is reported as an asset. If the net amount is a credit, it is reported as a liability.

Under the completed-contract method, the company recognizes revenue and cost only when the contract is completed. This method is used when the company is unable to make dependable estimates of future costs necessary to apply the percentage-of-completion method.

¹⁸ The completed-contract method is used when the company is unable to make dependable estimates of future costs necessary to apply the percentage-of-completion method. In this case, the company recognizes revenue and cost only when the contract is completed. This method is used when the company is unable to make dependable estimates of future costs necessary to apply the percentage-of-completion method.

project to recognize revenue and cost of construction and to close the construction contract accounts.

Illustration 5-2D Journal Entries—Profit Recognition and Closing

| | 2006 | 2007 | 2008 |
|---------------------------------------|-----------|---------|-----------|
| Percentage-of-Completion | | | |
| Construction in progress—gross profit | 500,000 | 25,000 | 275,000 |
| Construction in progress | 500,000 | 300,000 | 600,000 |
| Revenue from long-term contracts | 2,000,000 | 125,000 | 1,875,000 |
| to record gross profit | | | |
| Billings on construction contract | | | 5,000,000 |
| Construction in progress | | | 5,000,000 |
| To close accounts | | | |
| Completed Contract | | | |
| Construction in progress—gross profit | | | 900,000 |
| Cost of construction | | | 4,100,000 |
| Revenue from long-term contracts | | | 5,000,000 |
| To record gross profit | | | |
| Billings on construction contract | | | 5,000,000 |
| Construction in progress | | | 5,000,000 |
| To close accounts | | | |

Why debit construction in progress for the amount of gross profit recognized? In the typical manufacturing situation, inventory prior to sale is stated at cost. The difference between the historical cost of the inventory and its sales price (the gross profit), is not recognized until product delivery. In other words, assets are not increased until the inventory is sold.

The percentage-of-completion method departs from historical cost and recognizes a portion of the markup between the cost and the selling price of inventory prior to delivery. In our illustration, at the end of 2006 the total estimated cost is \$3,750,000 and the estimated markup to sales price is \$1,250,000. The inventory is increased by \$500,000 which represents 40% of this total markup. The completed contract method recognizes the actual markup when the project is completed.

The construction in progress account and the billings on construction contracts account before closing entries are illustrated below for both methods using T-accounts.

Accounting for Construction Contracts
Percentage-of-Completion Method

Percentage-of-Completion

| | Construction in Progress |
|-------------------------|--------------------------|
| 2006 construction costs | 4,500,000 |
| 2006 gross profit | 500,000 |
| End balance, 2006 | 500,000 |
| 2007 construction costs | 300,000 |
| 2007 gross profit | 25,000 |
| End balance, 2007 | 825,000 |
| 2008 construction costs | 1,600,000 |
| 2008 gross profit | 275,000 |
| Balance, before closing | 5,000,000 |

Completed Contract

| | Construction in Progress |
|-------------------------|--------------------------|
| 2006 construction costs | 500,000 |
| End balance, 2006 | 500,000 |
| 2007 construction costs | 1,000,000 |
| End balance, 2007 | 1,500,000 |
| 2008 construction costs | 3,600,000 |
| 2008 gross profit | 900,000 |
| Balance, before closing | 5,000,000 |

Accounting for Construction Contracts
Completed Contract Method

Billings on Construction Contract

| | |
|-------------------------|-----------|
| 2006 billings | 2,000,000 |
| 2007 billings | 800,000 |
| 2008 billings | 2,200,000 |
| Balance, before closing | 5,000,000 |

Billings on Construction Contract

| | |
|-------------------------|-----------|
| 2006 billings | 2,000,000 |
| 2007 billings | 800,000 |
| 2008 billings | 2,200,000 |
| Balance, before closing | 5,000,000 |

PERSPECTIVE

There are significant differences among countries in the method used to recognize profit on long-term contracts. Practices in many countries, such as the U.K., Norway, Brazil, and Japan are similar to the United States. The percentage-of-completion method is preferred and the completed contract method can be used only in unusual situations. IFRS require use of the percentage-of-completion method when certain criteria are met.

The balance sheet presentation for the construction-related accounts by both methods is shown in Illustration 5-24.

| | Balance Sheet
(End of Year) | 2006 | 2007 |
|--|--------------------------------|-----------|-----------|
| Percentage-of-Completion | | | |
| Contract receivable | | \$200,000 | \$800,000 |
| Costs in excess of billings (\$1,200,000) | | \$300,000 | |
| Contract receivable | | | |
| Contract receivable less costs in excess of costs and profit (\$1,200,000) | | | \$75,000 |
| Completed Contracts | | | |
| Contract receivable | | \$200,000 | \$800,000 |
| Costs in excess of billings (\$1,200,000) | | \$300,000 | |
| Contract receivable | | | |
| Contract receivable less costs in excess of costs and profit (\$1,200,000) | | | \$75,000 |

ILLUSTRATION 5-2E
Balanced Sheet
Presentation

The first disclosure note to any set of financial statements usually is a summary of significant accounting policies. This note discloses the method the company uses to approach, for its long-term contracts. As an example of this, Graph 5-12 shows the disclosure note that appeared in a recent annual report of Fluor Corporation.

Disclosure: The
investor's interest in the
company is not
material to the
company's financial
statements.

None Engineering and Construction Contracts (in part)

[illegible]

GRAPHIC B-12

Disclosure of Revenue Recognition Policy for Construction Contracts - Fluor Corporation

Long-Term Contract Losses. The Harding Construction Company example above is rather a square in which a profit was realized on the construction contract. Unfortunately, the same can occur on long-term contracts. As a prelude to the following discussion, note in Exhibit 5-2 that Fluor Corporation recognizes losses "in the period in which they are determined."

Periodic loss occurs for profitable project. A time loss may be recognized in any one period over the life of the project even though the project as a whole is profitable. We determine the loss in period 5 the same way we determined the profit in profitable years. For example, assume the same \$5 million working for 10 years, investment in Company A the number in Illustration 5,¹⁰ but with the following cash-in-outflow:

| | 2006 | 2007 | 2008 |
|---|-------------|------------------|-------------|
| Construction costs incurred during the year | \$ 500,000 | \$1,260,000 | \$ 840,000 |
| Construction costs incurred in prior year | -0- | 1,500,000 | 2,760,000 |
| Cumulative construction costs | 1,500,000 | 2,760,000 | 4,600,000 |
| Estimated costs to complete at end of year | 2,250,000 | <u>1,840,000</u> | -0- |
| Total estimated and actual construction costs | \$3,750,000 | \$4,600,000 | \$4,600,000 |

At the end of 2006, gross profit of \$400,000 (revenue of \$2,000,000 less cost of construction of \$1,600,000) is recognized as previously determined.

At the end of 2007, the company will forecast a profit of \$400,000 (\$5,000,000 less \$4,600,000) on the project and, at that time, the project is estimated to be 60% complete (\$2,760,000 ÷ \$4,600,000). Applying this percentage to the anticipated gross profit of \$400,000 results in a gross profit to date of \$240,000. But remember, a gross profit of \$500,000 was recognized in 2006.

This situation is treated as a *change in accounting estimate* because it resulted from a change in the estimation of costs to complete at the end of 2006. Costs to complete—\$4,600,000—were much higher than the end of 2006 estimate of \$3,750,000. Recall our discussion of changes in accounting estimates in Chapter 4; but we don't go back and restate the prior year's gross profit. Instead, the 2007 income statement would report a loss of \$360,000 (\$500,000 - 240,000). The loss consists of revenue of \$1,000,000 (\$5,000,000 × 40%) = \$3,000,000 less 2006 revenue of \$2,000,000 less cost of construction of \$1,600,000 (cost incurred in 2007). The following journal entry records the loss.

Recognized losses on
cost of construction
before the construction
project is completed

| | | |
|----------------------------------|-----------|-----------|
| Cost of construction | 1,260,000 | |
| Revenue from long-term contracts | | 1,000,000 |
| Construction in progress loss | | 260,000 |

The 2008 income statement would report a gross profit of \$160,000 determined as follows:

| | |
|--|------------|
| Project gross profit | \$400,000 |
| Less: Gross profit recognized in prior periods (\$500,000 - 240,000) | (240,000) |
| 2008 gross profit | \$ 160,000 |

The 2008 gross profit comprises \$2,000,000 in revenue (\$5,000,000 less revenue of \$3,000,000 recognized in 2006 and 2007) and \$1,840,000 in cost of construction cost incurred in 2008.

Of course, by the completed contract method, no profit or loss is recorded in 2006 or 2007 (instead, a \$400,000 gross profit—revenue of \$5,000,000 and cost of construction of \$4,600,000) is recognized in 2008.

Loss is projected on the entire project. A more conservative approach is indicated when a loss actually is projected on the entire contract. Again consider the Harding Construction Company example but with the following cost information.

| | 2006 | 2007 | 2008 |
|---|-------------|-------------|-------------|
| Construction costs incurred during the year | \$1,500,000 | \$1,260,000 | \$2,440,000 |
| Construction costs incurred in prior year | -0- | 1,500,000 | 2,760,000 |
| Cumulative construction costs | 1,500,000 | 2,760,000 | 5,200,000 |
| Estimated costs to complete at end of year | 2,250,000 | 2,340,000 | -0- |
| Total estimated and actual construction costs | \$3,750,000 | \$5,100,000 | \$5,200,000 |

At the end of 2007, revised costs indicate a loss of \$100,000 for the entire project (\$5,000,000 less \$5,100,000). In this situation, this *total* anticipated loss must be recognized in 2007 for both the percentage-of-completion method and the completed contract method.

gross profit of \$400,000 was recognized in 2006 using the percentage-of-completion method. 2006 PP&L may be restated as follows. Consequently, this initial entry is treated as a change in accounting estimate with no restatement of 2006 income. If the completed contract method is used, because no gross profit is recognized in 2006, the \$100,000 loss for the project is recognized in 2007.

If the loss is not recognized in 2007, construction in progress would be valued at an amount greater than the company expects to realize from the contract. The construction in progress account is reduced to \$2,600,000, and the loss account is debited \$100,000 (loss recognized to date). This amount combined with the estimated costs to complete of \$1,390,000 equals the net realizable contract price of \$5,000,000. Recognizing losses on long-term projects in the period the losses become known is equivalent to measuring inventory at the lower of cost or market.

Comparison of Periodic Gross Profit (Loss), Loss on Entire Contract. The pattern of gross profit (loss) over the contract period for the two methods is summarized in the following table. Notice that an anticipated increase in costs of \$100,000 causes a further loss of \$100,000 to be recognized in 2008.

| | Percentage-of-Completion | Completed Contract |
|---------------------------------|--------------------------|--------------------|
| Gross profit (loss) recognized: | | |
| 2006 | \$500,000 | -\$0 |
| 2007 | 1600,000 | \$100,000 |
| 2008 | 1700,000 | 100,000 |
| Total project loss | <u>\$200,000</u> | <u>\$200,000</u> |

The table in Illustration 5-2F shows the revenue and cost of construction recognized in each of the three years using the percentage-of-completion method.

2006

| | |
|--|------------------|
| Revenue recognized (\$5,000,000 × 40%) | \$2,000,000 |
| Costs of construction | 1,500,000 |
| Gross profit | <u>\$500,000</u> |

2007

| | |
|--|------------------|
| Revenue recognized to date (\$5,000,000 × 54.12%)* | \$2,706,000 |
| less: Revenue recognized in 2006 | (2,000,000) |
| Revenue recognized | \$706,000 |
| Cost of construction | 1,306,000 |
| Loss | <u>\$600,000</u> |

2008

| | |
|---|------------------|
| Revenue recognized to date (\$5,000,000 × 100%) | \$5,000,000 |
| less: Revenue recognized in 2006 and 2007 | (2,706,000) |
| Revenue recognized | \$2,294,000 |
| Cost of construction | 2,394,000 |
| Loss | <u>\$100,000</u> |

* 2007: $\$1,500,000 \div \$4,125,000 = 36.12\%$
 * 2008: $\$1,500,000 \div \$4,125,000 = 36.12\%$

ILLUSTRATION 5-2F

Percentage-of-Completion Method: Allocation of Revenue and Cost of Construction Each Period—Loss on Entire Project

Revenue is recognized in the usual way by multiplying a percentage of completion by the contract price. In situations where a loss is expected on the entire project, cost of construction for the period will no longer be equal to cost incurred during the period. The easy way to compute cost of construction is to add the amount of the recognized loss to the

An estimated loss on a long-term contract is fully recognized in the first period in which it occurs, regardless of the accounting method used.

amount of revenue recognized. For example, in 2007 revenue recognized of \$700,000 is added to the loss of \$600,000, net to arrive at the cost of construction of \$1,300,000.¹⁹

The journal entries to record the losses in 2007 and 2008 are as follows:

| | | | |
|----------------------------------|--|------------|-----------|
| 2007 | | | |
| Construction in progress | | \$ 300,000 | |
| Revenue from long-term contracts | | | 700,000 |
| Construction in progress (loss) | | | 600,000 |
| 2008 | | | |
| Construction in progress | | 2,394,000 | |
| Revenue from long-term contracts | | | 2,294,000 |
| Construction in progress (loss) | | | 100,000 |

Using the completed contract method, no revenue or cost of construction is recognized until the contract is complete. In 2007, a loss on long-term contracts (an income statement account) of \$100,000 is recognized. In 2008, the income statement will report revenue of \$5,000,000 and cost of construction of \$5,100,000, thus reporting the additional loss of \$100,000. The journal entries to record the losses in 2007 and 2008 are as follows:

| | | | |
|----------------------------------|--|--------------|-----------|
| 2007 | | | |
| Loss on long-term contracts | | 100,000 | |
| Construction in progress (loss) | | | 100,000 |
| 2008 | | | |
| Cost of construction | | \$ 1,100,000 | |
| Revenue from long-term contracts | | | 5,000,000 |
| Construction in progress (loss) | | | 100,000 |

You can see from this that use of the percentage-of-completion method in this case produces a large overstatement of income in 2006 and a large understatement in 2007 caused by a change in the estimation of future costs. Recall that if a company feels that it is unable to make dependable forecasts of future costs, the completed contract method should be used.

CONCEPT REVIEW EXERCISE

LONG-TERM CONSTRUCTION CONTRACTS

During 2006, the Sartorius Construction Company began construction on an office building for the City of Germen. The contract price is \$8,000,000 and the building will take approximately 18 months to complete. Completion is scheduled for early in 2008. The company's fiscal year ends on December 31.

The following is a year-by-year recap of construction costs incurred and the estimated costs to complete the project as of the end of each year. Progress billings and cash collections also are indicated.

| | | | |
|---|--|--------------|--------------|
| The cost of construction should be recognized as follows: | | | |
| 1. Contract price | | \$ 8,000,000 | |
| 2. Less: | | | |
| Remaining total project cost, net (including the loss) | | | |
| (\$5,000,000 - 100,000) | | \$ 4,900,000 | |
| Anticipated by the percentage of completion | | | 2,100,000 |
| 3. Net | | | 2,800,000 |
| 4. Cost of construction recognized in 2006 | | | 2,800,000 |
| 5. Net construction recognized in 2007 | | | \$ 2,100,000 |
| 6. Total cost recognized | | | \$ 4,900,000 |

—————

| | 2006 | 2007 | 2008 |
|---|-------------|-------------|-------------|
| Construction costs incurred during the year | \$1,500,000 | \$4,500,000 | \$1,550,000 |
| Construction costs incurred in prior years | 0 | 500,000 | 6,000,000 |
| Unitive construction costs | 500,000 | 6,000,000 | 7,550,000 |
| Estimated costs to complete at end of year | 4,500,000 | 1,500,000 | 0 |
| Total estimated and actual construction costs | \$6,000,000 | \$7,500,000 | \$7,550,000 |
| Billings made during the year | \$2,400,000 | \$5,200,000 | \$3,400,000 |
| Cash collections during year | 1,000,000 | 4,000,000 | 3,000,000 |

Required:

- Determine the amount of gross profit or loss to be recognized in each of the three years applying both the percentage-of-completion and completed contract methods.
- Prepare the necessary summary journal entries for each of the three years to account for construction costs incurred, recognized revenue and cost of construction, contract billings, and cash collections and to close the construction accounts in 2008 using the percentage-of-completion method only. Prepare a partial balance sheet for 2006 and 2007 to include all construction-related accounts using the percentage-of-completion method.

- Determine the amount of gross profit or loss to be recognized in each of the three years applying both the percentage-of-completion and completed contract methods.

SOLUTION

Percentage-of-Completion Method

| | 2006 | 2007 | 2008 |
|--|-------------|--------------|-------------|
| Contract price | \$8,000,000 | \$8,000,000 | \$8,000,000 |
| Less: costs to complete | 6,000,000 | \$7,500,000 | 7,550,000 |
| Total estimated gross profit to date | 2,000,000 | 500,000 | 450,000 |
| Multiplied by % of completion* | 25 | 80% | 00% |
| Gross profit recognized to date | 500,000 | 400,000 | 450,000 |
| Less: gross profit recognized in prior years | 0 | (500,000) | (000,000) |
| Gross profit (loss) recognized | \$500,000 | \$ (100,000) | \$450,000 |

*The percentage of completion is

| | 2006 | 2007 | 2008 |
|--------------------------------|-----------|-----------|-----------|
| Costs incurred during the year | 1,500,000 | 4,500,000 | 1,550,000 |
| Costs incurred in prior years | 0 | 500,000 | 6,000,000 |
| Total costs incurred | 1,500,000 | 5,000,000 | 7,550,000 |
| Estimated total costs | 6,000,000 | 7,500,000 | 7,550,000 |
| Percentage of completion | 25% | 80% | 100% |

Completed Contract Method

| | 2006 | 2007 | 2008 |
|-------------------------|------|------|-----------|
| Gross profit recognized | 0 | 0 | \$450,000 |

- Prepare the necessary summary journal entries for each of the three years to account for construction costs incurred, recognized revenue and cost of construction, contract billings, and cash collections and to close the construction accounts in 2008 using the percentage-of-completion method only.

| | 2006 | 2007 | 2008 |
|--|-----------|-----------|-----------|
| Construction in progress | 500,000 | 4,500,000 | 1,550,000 |
| Less: materials, etc. | 0 | 0 | 550,000 |
| Gross profit in construction | 500,000 | 0 | 0 |
| Construction in progress, gross profit | 500,000 | 0 | 0 |
| Revenue from long-term contracts | 2,400,000 | 5,200,000 | 3,400,000 |
| Cost of construction | 1,500,000 | 4,500,000 | 1,550,000 |
| Gross profit | 500,000 | 0 | 450,000 |

| | 2006 | 2007 | 2008 |
|--|-----------|-----------|-----------|
| Cost of construction | | 4,500,000 | |
| Revenue from long-term contracts (below) | | 4,400,000 | |
| Construction in progress (below) | | 4,000,000 | |
| To record loss | | 4,000,000 | |
| Accounts receivable | 1,400,000 | 5,200,000 | 400,000 |
| Billings on construction contract | | 600,000 | 5,200,000 |
| To record progress billings | | | 1,400,000 |
| Cash | 1,000,000 | 1,000,000 | 1,000,000 |
| Accounts receivable | | 600,000 | 4,000,000 |
| To record cash collections | | | 3,000,000 |
| Billings on construction contract | | | 3,000,000 |
| Construction in progress | | | 8,000,000 |
| To close accounts | | | 8,000,000 |

| | |
|----------------------------|---|
| Revenue recognized: | |
| 2006: | $\$8,000,000 \times 25\% =$
<u>\$2,000,000</u> |
| 2007: | $\$8,000,000 \times 80\% =$
<u>\$6,400,000</u> |
| | Less: Revenue recognized in 2006
<u>2,000,000</u> |
| | Revenue recognized in 2007
<u>\$4,400,000</u> |
| 2008: | $\$8,000,000 \times 100\% =$
<u>\$8,000,000</u> |
| | Less: Revenue recognized in 2006 and 2007
<u>(6,400,000)</u> |
| | Revenue recognized in 2008
<u>\$1,600,000</u> |

- 1 Prepare a partial balance sheet for 2006 and 2007 to include all construction-related accounts using the percentage-of-completion method.

| | Balance Sheet
(End of Year) | |
|--|--------------------------------|-------------|
| | 2006 | 2007 |
| Current assets: | | |
| Accounts receivable | \$400,000 | \$1,600,000 |
| Costs and profit (\$2,000,000) in excess of billings (\$1,400,000) | 600,000 | |
| Current liabilities: | | |
| Billings (\$6,800,000) in excess of costs and profit (\$6,400,000) | | 200,000 |

Industry-Specific Revenue Issues

- 109 The previous sections addressed situations in which revenue is recognized either at a point in time after the earnings process is virtually complete or over time during the earnings process. We now look at two industry-specific situations: software and franchise sales that require revenue recognition using a combination of the two approaches.

SOFTWARE REVENUE RECOGNITION

We all know how important personal computers and the software to run them have become in our daily lives. The software industry is a key economic component of our economy. Microsoft alone reported revenues in excess of \$46 billion for its 2004 fiscal year.

The recognition of software revenues was a controversial issue throughout the 1990s. The often very contentious way software companies typically package their products is not unusual. Software companies typically bundle software and variables in a bundle for a

long-term contract price. The bundle often includes product, upgrades, postcontract customer support, and other services. The critical accounting question concerns the timing of revenue recognition.

The American Institute of Certified Public Accountants (AICPA) issued a Statement of Position (SOP) in 1994 providing guidance in this area. However, inconsistencies in practice led to a new SOP. In 1997, SOP 97-2 indicates that if an arrangement includes multiple elements, the revenue from the arrangement should be allocated to the various elements based on the relative fair values of the individual elements, "regardless of any separate prices stated within the contract for each element."¹¹

For example, suppose that a vendor sold software to a customer for \$100,000. As part of the contract, the vendor promises to provide technical support over the next six months. Prior to the issuance of SOP 97-2, some vendors were recognizing the entire \$100,000 as revenue when the initial software was delivered. Now, the \$100,000 contract price must be divided based on fair values. So, the seller might recognize \$60,000 in revenue initially and defer the remaining \$40,000 and recognize it ratably over the next six months. In its 2004 balance sheet, Microsoft reported a liability for unearned (deferred) software revenue of \$1,000,000.

In 1998, SOP 98-5¹² amended certain paragraphs of SOP 97-2 related to the methodology used to allocate the contract price in certain circumstances. Paragraph 4-13 contains a portion of Microsoft Corporation's unearned revenue disclosure note explaining the changes it made in the allocation of revenue from the sale of its Windows and Office operating systems to comply with SOP 98-5:

Unearned Revenue (in part)

Our software licenses are sold to our customers in a variety of ways. Some licenses are sold as a one-time purchase, while others are sold as part of a subscription agreement. In the case of a subscription agreement, the customer pays a fee for the right to use the software for a specified period of time. The revenue from these agreements is recognized over the period of the subscription. For example, if a customer purchases a license for a software product that has a three-year subscription period, the revenue from the sale of the license is recognized over the three-year period. The revenue from the sale of the license is recognized as unearned revenue and is reported as a liability on our balance sheet. The revenue from the sale of the license is recognized as unearned revenue and is reported as a liability on our balance sheet. The revenue from the sale of the license is recognized as unearned revenue and is reported as a liability on our balance sheet.

Some of the revenue from the sale of software licenses is deferred and is reported as a liability on our balance sheet. The revenue from the sale of the license is recognized as unearned revenue and is reported as a liability on our balance sheet.

Graphic 5-13

Disclosure of Unearned Revenue Policy
Microsoft Corporation

It is interesting to note that some analysts questioned the quality of Microsoft's earnings because of their revenue recognition policy. Specifically, Microsoft was criticized for deferring excessive amounts of revenue. As you can see in the disclosure note, it now recognizes more revenue currently and defers less than it had in the past.

The accounting treatment of the cost of developing computer software is discussed in Figure 5-14.

FRANCHISE SALES

The use of franchise arrangements has become increasingly popular in the United States over the past 30 years. Many retail outlets for fast food, restaurants, motels, and auto rental agencies are operated as franchises. In the franchise arrangements, the franchisee, for example, McDonald's Corporation, grants to the franchisee, quite often an individual, the right to sell the franchisor's products and use its name for a specified period of time. The restaurant where you ate your last Big Mac was probably owned and operated by an individual who had a franchise agreement with McDonald's Corporation.

¹¹ Statement of Position 97-2, Software Revenue Recognition With Multiple Elements Transactions, Statement of Position 97-2 (November 1997).

¹² Definition of SOP 97-2, Software Revenue Recognition With Multiple Elements Transactions, Statement of Position 98-5 (November 1998).

The fees to be paid by the franchisee to the franchisor typically comprise 1) the *initial franchise fee* and 2) *continuing franchise fees*. The services to be performed by the franchisor in exchange for the initial franchise fee, in addition to the right to use its name and sell its products, might include assistance in finding a location, constructing the facilities, and training employees. The initial franchise fee usually is a fixed amount, but it may be payable in installments.

The continuing franchise fees are paid to the franchisor for continuing rights as well as for advertising and promotion and other services provided over the life of the franchise agreement. These fees sometimes are a fixed annual or monthly amount, a percentage of the volume of business done by the franchisee, or a combination of both.

The continuing franchise fees usually do not present any accounting difficulty and are recognized by the franchisor as revenue *over time* in the periods the services are performed by the franchisor, which generally corresponds to the periods they are received. The challenging revenue recognition issue pertains to the initial franchise fee. In the early 1960s and 1970s, many franchisors recognized the entire initial franchise fee as revenue in the period in which the contract was signed. In many cases, there were significant services to be performed and the fee was collectible in installments over an extended period of time, creating uncertainty as to cash collection.

Specific guidelines for revenue recognition of the initial franchise fee are provided by SFAS 45. You should notice the similarity of the new specific guidelines with those of the general revenue recognition guidelines we've discussed previously. A key to these conditions is the concept of *substantial performance*. It requires that substantially all of the initial services of the franchisor required by the franchise agreement be performed before the initial franchise fee can be recognized as revenue. The term *substantial* requires professional judgment on the part of the accountant. In situations when the initial franchise fee is collectible in installments, even after substantial performance has occurred, the installment sales or cost-recovery methods should be used for initial recognition, if a reasonable estimate of collectibility cannot be made.

Consider the example in Illustration 5-3.

FASB

Franchise fee revenue from an individual franchise sale ordinarily shall be recognized with an appropriate provision for estimated uncollectible amounts when all material services or conditions relating to the sale have been substantially performed or satisfied by the franchisor.¹⁰

Initial franchise fees are recognized over time as the services are performed

Initial franchise fees are recognized over time as the services are performed

ILLUSTRATION 5-3 Franchise Sales

On March 31, 2006, the Red Hot Chicken Company, a corporation, entered into a franchise agreement with Thomas Keller. In exchange for a \$20,000 initial franchise fee, Red Hot will provide initial services to include the selection of a location, construction of the building, hiring of employees, and consulting services over the next year. \$5,000 is payable in March 31, 2006, with the remaining \$15,000 payable in four installments which include an additional \$1,000 per year for advertising and promotion plus continuing franchise fees of \$1,000 per year. Red Hot will begin training immediately and the franchise begins operations. Thomas Keller started his Red Hot franchise on business on September 30, 2006.

Initial Franchise Fee. A summary of the initial services to be performed by Red Hot subsequent to the contract signing are substantial, but that collectibility of the initial fee is reasonably certain, the following journal entry is recorded:

¹⁰ Accounting for Franchise Fee Revenue, "Statement of Financial Accounting Standards No. 45 (Sanford, Conn.: FASB), (1975).

March 31, 2006

| | | |
|---|--------|--------|
| cash | 0.000 | |
| note receivable | 40,000 | |
| earned franchise fee revenue | | 50,000 |
| To enter franchise agreement and down payment | | |

Revenue is not recognized until the franchise agreement is entered into and the franchise fee is received.

The unearned franchise fee revenue would then be recognized when the initial services have been performed. This could occur in increments or all at one point in time, depending on the circumstances.²⁰ For example, in our illustration, if substantial performance was deemed to have occurred when the franchise began operations, the following entry would be recorded:

Sept. 30, 2006

| | | |
|------------------------------------|--------|--------|
| earned franchise fee revenue | 40,000 | |
| franchise fee revenue | | 50,000 |
| To recognize franchise fee revenue | | |

If collectibility of the installment receivable is uncertain and there is no basis for estimating uncollectible amounts, the initial entry would record a credit to deferred franchise fee revenue which is then recognized as being earned using either the installment sales or cost-of-sales method.

Continuing Franchise Fees. Continuing franchise fee revenue is recognized on a monthly basis as follows:

| | | |
|--|-------|-------|
| cash or notes receivable | 1,000 | |
| service revenue | | 1,000 |
| To recognize continuing franchise fee revenue. | | |

Expenses incurred by the franchisor in providing these continuing franchise services should be recognized in the same periods as the service revenue.

Other unique industry-specific revenue recognition situations exist besides those we have discussed. The FASB and AICPA have issued detailed revenue recognition standards for six industries: insurance, record and music, cable television, and motion pictures.²¹ These industry standards are beyond the scope of this text. However, in each case, the objective is to recognize revenue in the period or periods that the revenue-generating activities of the company are performed.

ADDITIONAL CONSIDERATION

In certain circumstances, revenue is recognized at the completion of the production process (or even before delivery). This approach generally is used by companies that deal in precious metals and in agricultural, mineral, and other products, units of which are interchangeable and have an immediate marketability at quoted prices.²² This is called the production basis of recognizing revenue and is accomplished by writing inventory up from cost to market value.

Recall that in a typical manufacturing situation, revenue is not recognized at the completion of the production process due to significant uncertainty as to the collectibility of the asset to be received. We don't know if the product will be sold, nor the selling price.

²⁰ The revenue is deferred until the franchisor determines whether substantial performance has occurred. For example, if the franchisor determines that the franchisee has not yet begun operations, the revenue is not recognized. If the franchisor determines that the franchisee has begun operations, the revenue is recognized. If the franchisor determines that the franchisee has not yet begun operations, the revenue is not recognized. If the franchisor determines that the franchisee has begun operations, the revenue is recognized.

²¹ Included in the franchise fee is a right to be included in the franchise's operating system. The franchise fee is paid to the franchisor. The franchise fee is paid to the franchisor. The franchise fee is paid to the franchisor. The franchise fee is paid to the franchisor.

not the buyer if eventually sold. These uncertainties are not significant when there is an media's marketability at quoted market prices for products like precious metals. In cases when the production basis for recognizing revenue is used, full disclosure of the fact is required.

PART B PROFITABILITY ANALYSIS

Chapter 4 provided an overview of financial statement analysis and introduced some of the common ratios used in risk analysis to investigate a company's liquidity and long-term solvency. We now introduce ratios related to profitability analysis.

ACTIVITY RATIOS

• LO6

One key to profitability is how well a company manages and utilizes its assets. Some ratios are designed to evaluate a company's effectiveness in managing assets. Of particular interest is the activity, or turnover ratios, of certain assets, that is, the frequency with which these assets are replaced. The greater the number of times an asset turns over—the higher the ratio—the less cash a company must devote to that asset, and the more cash it can commit to other purposes. In other words, if these turnover ratios increase, fewer assets are required to maintain a given level of activity (revenue). Activity ratios do not measure profitability directly. However, they are important factors affecting profitability.

Although, in concept, the activity or turnover can be measured for any asset, activity ratios are most frequently calculated for accounts receivable, inventory, and total assets. These ratios are calculated as follows:

$$\begin{aligned}\text{Receivables turnover ratio} &= \frac{\text{Net sales}}{\text{Average accounts receivable (net)}} \\ \text{Inventory turnover ratio} &= \frac{\text{Cost of goods sold}}{\text{Average inventory}} \\ \text{Asset turnover ratio} &= \frac{\text{Net sales}}{\text{Average total assets}}\end{aligned}$$

Activity ratios measure the efficiency of a company's use of its assets.

The receivables turnover ratio is calculated by dividing a period's net credit sales by the average net accounts receivable. Because income statements seldom distinguish between cash sales and credit sales, this ratio usually is computed using total net sales as the numerator. The denominator, average accounts receivable, is determined by adding beginning and ending net accounts receivable (gross accounts receivable less allowances for uncollectible accounts) and dividing by two.

Receivables Turnover. The receivables turnover ratio is calculated by dividing a period's net credit sales by the average net accounts receivable. Because income statements seldom distinguish between cash sales and credit sales, this ratio usually is computed using total net sales as the numerator. The denominator, average accounts receivable, is determined by adding beginning and ending net accounts receivable (gross accounts receivable less allowances for uncollectible accounts) and dividing by two.

The receivables turnover ratio provides an indication of a company's efficiency in collecting receivables. The ratio shows the number of times during a period that the average accounts receivable balance is collected. The higher the ratio, the shorter the average time between credit sales and cash collection.

A convenient extension is the average collection period. This measure is computed simply by dividing 365 days by the receivables turnover ratio. The result is an approximation of the number of days the average accounts receivable balance is outstanding.

$$\text{Average collection period} = \frac{365}{\text{Receivables turnover ratio}}$$

Monitoring the receivables turnover ratio (and average collection period) over time can provide useful information about a company's future prospects. For example, a decline in the receivables turnover ratio (an increase in the average collection period) could be an indication of customer dissatisfaction with the company's products. Another possible explanation is that the company has changed its credit policy and is granting extended credit terms in order to maintain customers. Ratio analysis does not explain what might be wrong. It does provide information that highlights areas for further investigation.

To determine collection period, divide 365 by the average receivables turnover ratio.

Inventory Turnover An important activity measure for a merchandising company (a retail, wholesale, or manufacturing company) is the inventory turnover ratio. The ratio shows the number of times the average inventory balance is sold during a reporting period. It indicates how quickly inventory is sold. The more frequently a business is able to sell, or turn over, its inventory, the lower its investment in inventory must be for a given level of sales. The ratio is computed by dividing the period's cost of goods sold by the average inventory balance. The denominator, average inventory, is determined by adding beginning and ending inventory and dividing by two.²²

A relatively high ratio, say, compared to a competitor usually is desirable. A high ratio indicates comparative strength, perhaps caused by a company's superior sales force, the existence of highly popular products, or maybe a successful advertising campaign. However, it can also be caused by a relatively low inventory level, which could mean stockouts and lost sales in the future. As with any ratio, care must be taken in evaluating this ratio.

On the other hand, a relatively low ratio, or a decrease in the ratio over time, usually is perceived to be unfavorable. Too much capital may be tied up in inventory. A relatively low ratio may result from overstocking, the presence of obsolete items, or poor marketing and sales efforts.

Similar to the receivables turnover, we can divide the inventory turnover ratio into 365 days to compute the average days in inventory. This measure indicates the number of days, on average, taken to turn inventory.

$$\text{Average days in inventory} = \frac{365}{\text{Inventory turnover ratio}}$$

Asset Turnover A broad measure of asset efficiency is the asset turnover ratio. The ratio is computed by dividing a company's net sales or revenues by the average total assets available for use during a period. The denominator average assets, is determined by adding beginning and ending total assets and dividing by two. The asset turnover ratio provides an indication of how efficiently a company utilizes all of its assets to generate revenue.

Industry standards are particularly important when evaluating asset turnover. Some industries are characterized by low turnover but typically make up for it with higher profit margins. Others have low profit margins but compensate with high turnover. Grocery stores typically have relatively low profit margins but relatively high asset turnover. In comparison, manufacturers of specialized equipment will have a higher profit margin but a lower asset turnover. But again the ratio is better placed in a context with profit margin analysis to assess the firm's success.

PROFITABILITY RATIOS

A fundamental element of an analyst's task is to develop an understanding of a firm's profitability. Profitability ratios attempt to measure a company's ability to earn an adequate return relative to sales or resources devoted to operations. Resources devoted to operations can be viewed as total assets or only those assets provided by owners, depending on the evaluation perspective.

Three common profitability measures are (1) the profit margin on sales, (2) the return on assets, and (3) the return on shareholders' equity. These ratios are calculated as follows:

$$\text{Profit margin on sales} = \frac{\text{Net income}}{\text{Net sales}}$$

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$\text{Return on shareholders' equity} = \frac{\text{Net income}}{\text{Average shareholders' equity}}$$

The operating margin, the operating profit margin, efficiency in management of operations, is measured as operating profit divided by sales.

The asset turnover ratio is a measure of how efficiently a company utilizes its assets to generate revenue.

LO6

Profitability ratios are measures of a company's ability to earn an adequate return relative to sales or resources devoted to operations. Resources devoted to operations can be viewed as total assets or only those assets provided by owners, depending on the evaluation perspective.

²² The numerator in the inventory turnover ratio is expressed as the denominator of the receivables ratio. For the receivables denominator, the numerator is net sales. When the numerator and denominator are reversed, the ratio is the inverse of the original ratio.

When a company's profitability is high, its net income is high. When a company's profitability is low, its net income is low.

The profit margin is a measure of a company's profitability. It is the ratio of net income to net sales.

Notice that for all of the profitability ratios, our numerator is net income. Recall our discussion in Chapter 4 on earnings quality. The relevance of any historical-based financial statement hinges on its predictive value. To enhance predictive value, analysts try to separate a company's *transitory earnings* effects from its *permanent earnings*. Analysts begin their assessment of permanent earnings with income from continuing operations. Then, adjustments are made for transitory income effects, if any, included in income from continuing operations. It is this adjusted number that we use as the numerator in these ratios.

Profit Margin on Sales. The profit margin on sales is simply net income divided by net sales. The ratio measures an important dimension of a company's profitability. It indicates the portion of each dollar of revenue that is available to cover expenses. It offers a measure of the company's ability to withstand either higher expenses or lower revenues.

As we discussed in the previous section, what is considered to be a desirable profit margin is highly sensitive to the nature of the business activity. For instance, you would expect a specialty shop to have a higher profit margin than, say, **Wal-Mart**. A low profit margin can be compensated for by a high asset turnover rate, and vice versa.

Return on Assets. The return on assets (ROA) indicates a company's overall profitability. The ratio expresses net income as a percentage of the average total assets available to generate that income. Because total assets are partially financed with debt and partially by equity funds, this is an inclusive way of measuring earning power that ignores specific sources of financing.

Recall from our previous discussion that a company's return on assets is related to both profit margin and asset turnover. Specifically, profitability can be achieved by either a high profit margin, high turnover, or a combination of the two.²⁸ In fact, the return on assets can actually be calculated by multiplying the profit margin ratio by the asset turnover ratio.

$$\begin{aligned} \text{Return on assets} &= \text{Profit margin on sales} \times \text{Asset turnover} \\ &= \frac{\text{Net income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Average total assets}} \end{aligned}$$

The decomposition of return on assets illustrates why some companies with relatively small profit margins can be very profitable if they have high asset turnover. Alternatively, companies with relatively low asset turnover ratios can be profitable if they are able to sell with large profit margins.

ADDITIONAL CONSIDERATION

The return on assets ratio often is computed as follows:

$$\text{Return on assets} = \frac{\text{Net income} + \text{Interest expense} (1 - \text{Tax rate})}{\text{Average total assets}}$$

The reason for adding back interest expense (net of tax) is that interest represents a return to suppliers of debt capital and should not be deducted in the computation of net income when computing the return on total assets. In other words, the numerator is the total amount of income available to both debt and equity capital.

The return on equity is a measure of a company's profitability. It is the ratio of net income to average shareholders' equity.

Return on Shareholders' Equity. One measure of profitability is the ability of management to generate net income from the resources owners provide. Sometimes viewed by shareholders as the key criterion of profitability, the ratio is often called by listing net income by average shareholders' equity.

When the return on shareholders' equity is greater than the return on assets, management is using assets funded by debt to increase the income available for shareholders. This concept, known as *financial leverage*, was discussed in Chapter 3.

²⁸This notion is sometimes referred to as the Du Pont analysis because the Du Pont Company was a pioneer in analyzing this relationship.

ADDITIONAL CONSIDERATION

Sometimes when this ratio is calculated, shareholders' equity is viewed more narrowly to include only common shareholders. In that case, preferred stock is excluded from the denominator, and preferred dividends are deducted from net income in the numerator. The resulting ratio of return on common shareholders' equity focuses on profits generated on resources provided by common shareholders.

Graphic 5-14 provides a recap of the activity and profitability ratios.

Activity ratios

| | |
|----------------------------|---|
| Receivables turnover | $\frac{\text{Net sales}}{\text{Average accounts receivable}}$ |
| Asset utilization ratios | $\frac{\text{Net sales}}{\text{Average total assets}}$ |
| Inventory turnover | $\frac{\text{Cost of goods sold}}{\text{Average inventory}}$ |
| Days' sales in inventory | $\frac{365}{\text{Inventory turnover ratio}}$ |
| Days' sales in receivables | $\frac{365}{\text{Receivables turnover ratio}}$ |

Profitability ratios

| | |
|--------------------------------|---|
| Profit margin on sales | $\frac{\text{Net income}}{\text{Net sales}}$ |
| Return on assets | $\frac{\text{Net income}}{\text{Average total assets}}$ |
| Return on shareholders' equity | $\frac{\text{Net income}}{\text{Average shareholders' equity}}$ |

GRAPHIC 5-14
Activity and
Profitability Ratios

Profitability Analysis—An Illustration

To illustrate the computation of the activity and profitability ratios, we analyze two well-known pharmaceutical companies, **Bristol-Myers Squibb (BMS)** and **Merck & Co., Inc.** The operations of these two companies are similar in terms of their involvement in pharmaceutical and other health care products. Illustration 5-4A presents selected financial statements information for the two companies.

On the surface, it appears that Merck was more profitable than BMS. Merck's 2003 net income was \$6.831 billion compared to \$3.106 billion for BMS. But that's not the whole story. Even though both are very large companies, Merck is larger than BMS in terms of total assets. Illustration 5-4B presents a comparison of the various activity and profitability ratios for 2003. Notice that net income for Merck includes \$241 million in income from discontinued operations. The profitability ratios in our illustration are calculated using income from continuing operations of \$6.590 billion (\$6.831 billion minus \$241 million).

BMS's receivables and inventory turnover ratios are significantly higher than Merck's. A major cause in the difference may be products sold by the two companies. BMS is more diversified than Merck in terms of its product lines and markets that it serves. BMS's receivables and inventory turnovers are also higher than the industry average.

ILLUSTRATION 5-4A
Selected Financial
Information for
Bristol-Myers Squibb
and Merck & Co., Inc.

| | Balance Sheet
(in millions) | | | |
|----------------------------|--------------------------------|----------|----------|----------|
| | BMS | | Merck | |
| | 2001 | 2002 | 2003 | 2002 |
| Accounts receivable (net) | \$ 7 | \$ 969 | \$ 1,714 | \$ 1,622 |
| Prepaid expenses | | 610 | 754 | 1,084 |
| Patent costs | 71 | 210 | 405 | 475 |
| Goodwill | 7 | 1,268 | 20,71 | 29,161 |
| Total shareholders' equity | 71 | 2,756 | 15,576 | 4,704 |
| Two-year averages: | | | | |
| Accounts receivable (net) | | \$ 3,307 | | \$ 4,774 |
| Prepaid expenses | | 604 | | 1,54 |
| Total assets | | 26,246 | | 44,074 |
| Total shareholders' equity | | 92 | | 16,888 |
| Income Statement (2003) | | | | |
| Net sales | | \$1,091 | | \$2,486 |
| Cost of goods sold | | 7,592 | | 4,125 |
| Net income | | 1 | | 1,361 |

Source: BMS and Merck 10-K documents filed with SEC.

ILLUSTRATION 5-4B
Activity and
Profitability Ratios—
Bristol-Myers Squibb
(BMS) and Merck &
Co., Inc.

| | BMS | Merck | Industry
Average ^a |
|--------------------------------|--------------------------------------|---------------------------------------|----------------------------------|
| Activity ratios: | | | |
| Receivables turnover | $\frac{20,894}{3,307} = 6.32$ | $\frac{22,486}{4,774} = 4.71$ | 6.06 |
| Average collection period | $\frac{365}{6.32} = 58 \text{ days}$ | $\frac{365}{4.71} = 77 \text{ days}$ | 60 days |
| Inventory turnover | $\frac{92}{4.73} = 19.4$ | $\frac{4,315}{1,756} = 2.46$ | 2.55 |
| Average days in inventory | $\frac{365}{19.4} = 19 \text{ days}$ | $\frac{365}{2.46} = 148 \text{ days}$ | 143 days |
| Asset turnover | $\frac{20,894}{26,246} = .80$ | $\frac{22,486}{44,074} = .51$ | .65 |
| Profitability ratios: | | | |
| Profit margin on sales | $\frac{3,104}{20,894} = .15$ | $\frac{6,390}{22,486} = .28$ | .18 |
| Return on assets | $\frac{3,104}{26,246} = .12$ | $\frac{6,390}{44,074} = .15$ | .14 |
| Return on shareholders' equity | $\frac{3,104}{9,271} = .34$ | $\frac{6,390}{16,888} = .38$ | .34 |

Source: BMS and Merck 10-K documents filed with SEC.

Merck's return on shareholders' equity and return on assets are higher than BMS's, and the ratios of both companies equal or exceed the industry average. As shown below, Merck's higher return on assets can be attributed to higher profit margin.

| | Profit Margin | \times | Asset Turnover | = | Return on Assets |
|-------|---------------|----------|----------------|---|------------------|
| BMS | 15 | \times | .80 | = | 12% |
| Mendo | 29 | \times | .51 | = | 15% |

Both companies produced a higher return on shareholders' equity than return on assets. This means that they were both able to use assets funded by debt to increase the income available for shareholders. This is an example of favorable financial leverage to which we referred earlier.

The essential point of our discussion here, and in Part C of Chapter 3, is that raw accounting numbers alone mean little to decision makers. The numbers gain value when viewed in relation to other numbers. Secondly, the financial ratios formed by those relationships provide even greater perspective when compared with similar ratios of other companies, or, ideally, with averages for several companies in the same industry. Accounting information is useful in making decisions. Financial analysis that includes comparisons of financial ratios enhances the value of that information.

FINANCIAL REPORTING CASE SOLUTION

1. Does your sister have to wait two and a half years to get her bonus? Explain. (p. 224) No. The general revenue recognition criteria would suggest that revenue and costs should be recognized when a project is finished. The difficulty this would create is that all revenues, expenses, and resulting profit from the project are recognized when the project is completed so revenues or expenses would be reported in the income statements of earlier reporting periods in which much of the work may have been performed. The percentage-of-completion method of revenue recognition for long-term projects addresses this problem. A share of the project's profit is allocated to each period in which the earnings process occurs. This is two and a half years in this instance.

How are gross profits recognized using the percentage-of-completion method? (p. 225)

The percentage-of-completion method recognizes part of the estimated gross profit each period. The amount recognized is based on progress to date which is estimated as the fraction of the project's cost incurred to date divided by total estimated costs. The estimated percentage of completion is multiplied by the revised project gross profit estimate. This yields the estimated gross profit earned from the beginning of the project. The gross profit recognized is calculated by subtracting from this amount the gross profit recognized in previous periods.

Are there other situations in which revenue is recognized at times other than when a product is delivered? (p. 227) Yes, revenue recognition sometimes is delayed until after the product is delivered. These situations involve either the possibility of product returns or bad debts. In most cases, product returns and bad debt are estimated and revenues are recognized when a product is delivered. However, in situations involving an abnormal degree of uncertainty about cash collection caused by potential returns or bad debts, revenue recognition after delivery sometimes is appropriate. ■

THE BOTTOM LINE

The objective of revenue recognition is to recognize revenue in the period or periods that the revenue-generating activities of the company are performed. Also, judgment as to the collectibility of the cash from the sale of a product or service will impact the dating of revenue recognition. These two concepts of performance and collectibility are captured by the general guidelines for revenue recognition to the realization principle which requires that revenue should be recognized only after (1) the earnings process is virtually complete and (2) there is reasonable certainty of collecting the asset to be received (usually cash) from the customer. For the sale of product, these criteria usually are satisfied at the point of product delivery. At that point, the majority of the productive activities have taken place with any remaining uncertainty concerning asset collection



can be accounted for by estimating, possible returns and bad debts. Also, service revenue often is recognized at a point in time if there is one final activity that is deemed critical to the earnings process.

2. The **cost-recovery method** recognizes gross profit only after an entity has recovered the gross profit percentage on the sale to the amount of cash actually received. The cost-recovery method defers all gross profit recognition until cash has been received equal to the cost of the item sold. These methods of recognizing revenue should only be used in situations where there is an unusually high degree of uncertainty regarding the ultimate cash collection on an installment sale.
3. In most situations, even though the right to return merchandise exists, revenues and expenses can be appropriately recognized at point of delivery. Based on past experience, a company usually can estimate the returns that will result for a given volume of sales. These estimates reduce both sales and cost of goods sold in anticipation of returns. Revenue cannot be recognized at the point of delivery unless the seller is able to make reliable estimates of future returns. Otherwise, revenue recognition is deferred beyond the delivery point.
4. Revenue recognition at a single point in time when the earnings process is virtually complete is inappropriate for certain types of service revenue activities and also, usually, for long-term contracts. The **completed contract method** recognizes revenues and expenses on long-term construction and other long-term contracts at a point in time when the project is complete. This method is only used in unusual situations. The preferable method for recognizing revenues and expenses for long-term contracts is the **percentage-of-completion method**, which recognizes revenues over time by assigning a share of the project's revenues and costs to each reporting period during the project.
5. Industry guidelines require that the lump-sum contract price for software be allocated to the various elements of the package based on the relative fair values of the individual elements. Generally, this results in a deferral of a portion of the proceeds that are then recognized as revenue in future periods. The use of franchise arrangements has become increasingly popular. The fees to be paid by the franchisee to the franchisor usually are composed of (1) the initial franchise fee and (2) continuing franchise fees. *SSAS 45* requires that the franchisor has substantially performed the services promised in the franchise agreement and that the collectibility of the initial franchise fee is reasonably assured before the initial fee can be recognized as revenue. The continuing franchise fees are recognized by the franchisor as revenue over time in the periods the services are performed by the franchisor.
6. Activity and profitability ratios provide information about a company's profitability. Activity ratios include the receivables turnover ratio, the inventory turnover ratio, and the asset turnover ratio. Profitability ratios include the profit margin on sales, the return on assets, and the return on shareholders' equity. ■



INTERIM REPORTING

Interim reports are financial statements covering periods of less than a year. They are used to provide timely information to investors and creditors.

Interim reporting is a key component of financial reporting. It provides timely information to investors and creditors, helping them make informed decisions about the company's financial health.

Financial statements covering periods of less than a year are called *interim reports*. Companies registered with the SEC, which includes most public companies, must submit quarterly reports.⁵⁰ Though there is no requirement to do so, most also mail quarterly reports to their shareholders and typically include abbreviated, unaudited interim reports as supplements. Information within their annual reports. For instance, Graphic SA-1 shows the quarterly information disclosed in the 2004 annual report of the *Wal-Mart Corporation*.

For accounting information to be useful to decision makers, it must be available on a timely basis. One of the objectives of interim reporting is to enhance the timeliness of financial information. In addition, quarterly reports provide investors and creditors with additional insight on the seasonality of business operations that might otherwise get lost in annual reports.

⁵⁰Quarterly reports are filed with the SEC on Form 10-Q. Annual reports on the SEC are on Form 10-K.

Quarterly Information

Q1 2003 (in millions of dollars; amounts rounded)

| Quarter Ended | Sep 30 | Dec 31 | Mar 31 | June 30 |
|-----------------------------|---------|----------|----------|---------|
| Fiscal 2003 | | | | |
| Revenue | \$7,746 | \$ 8,541 | \$ 8,835 | \$9,085 |
| Gross profit | 6,112 | 6,444 | 6,561 | 6,721 |
| Net income | 2,371 | 2,865 | 2,422 | 2,683 |
| Earnings per share | 0.39 | 0.47 | 0.40 | 0.44 |
| Adjusted earnings per share | 0.39 | 0.47 | 0.40 | 0.44 |
| Fiscal 2004 | | | | |
| Revenue | \$8,225 | \$ 9,531 | \$9,775 | \$9,292 |
| Gross profit | 6,425 | 7,809 | 7,764 | 7,811 |
| Net income | 2,614 | 3,549.7 | 3,314.7 | 2,680 |
| Earnings per share | 0.43 | 0.58 | 0.54 | 0.44 |
| Adjusted earnings per share | 0.43 | 0.58 | 0.54 | 0.44 |

Source: Microsoft Corporation, "Microsoft Reports Fourth Quarter and Fiscal Year 2004 Results," Microsoft Corporation, 2004. Available at <http://www.microsoft.com/presskit/quarterly/2004/q4.mspx>. Accessed 10/1/04.

GRAPHIC 5A-1

Interim Data in Annual Reports: Microsoft Corporation

However, the downside to the benefits is the relative unreliability of interim reporting. With a shorter reporting period, questions associated with estimation and allocation are magnified. For example, certain expenses often benefit an entire year's operations and yet are incurred primarily within a single interim period. Should similar expenditures be allocated across the earlier quarters and higher sales in later quarters as higher sales levels are reached? Another result of shorter reporting periods is the intensified effect of major events, such as discontinued operations or extraordinary items. A second quarter casualty loss, for instance, that would reduce annual profits by 10% might reduce second quarter profit by 40% or more. Is it more realistic to allocate such a loss over the entire year? These are similar questions that tend to hinge on the way we view an interim period in relation to the entire year. More specifically, should each interim period be viewed as a *discrete* reporting event or as an *integral part* of the annual period?

Reporting Revenues and Expenses

Existing practice and current reporting requirements for interim reporting generally follow the approach that interim reports use an integral part of annual statements. Although the discrete approach is applied to some items, most revenue and expenses are allocated using the same accounting principles applicable to annual reports. Some modifications are necessary to help make interim statements relate better to annual statements. This is most evident in the way costs and expenses are recognized. Most are recognized in interim periods as incurred. But when an expenditure clearly benefits more than one period in which it is incurred, the expense will be allocated among the periods benefited in an allocation that is consistent with the company's annual allocation procedures. For example, annual repair costs, operating expenses, and advertising expenses are incurred in the quarter that they benefit; later quarters are assigned to each quarter through the use of accruals and deferrals. Costs and expenses subject to year-end adjustment, such as depreciation and amortization expense, are estimated and allocated to interim periods in a systematic way. Similarly, income tax expense at each interim date should be based on estimates of the effective tax rate for the whole year. This would mean, for example, that if the estimated effective rate has changed since the previous interim period(s), the tax expense that period would be determined by the new rate times the cumulative taxable income to date less the total tax expense reported in previous interim periods.

Interim reporting is a discrete event or an integral part of the annual period?

Interim reporting is a discrete event or an integral part of the annual period?

On the other hand, major events such as discontinued operations or extraordinary items should be reported separately in the interim period in which they occur. That is, these amounts should not be allocated among individual quarters within the fiscal year. The same is true for items that are unusual or infrequent but not both. Notion that treatment of these items is more consistent with the discrete view than the integral part view.

Reporting Unusual Items

On the other hand, major events such as discontinued operations or extraordinary items should be reported separately in the interim period in which they occur. That is, these amounts should not be allocated among individual quarters within the fiscal year. The same is true for items that are unusual or infrequent but not both. Notion that treatment of these items is more consistent with the discrete view than the integral part view.

Earnings Per Share

A second item that is treated in a manner consistent with the discrete view is earnings per share. EPS calculations for interim reports follow the same procedures as annual calculations that you will study in Chapter 9. The calculations are based on conditions actually existing during the particular interim period rather than on conditions estimated to exist at the end of the fiscal year.

Reporting Accounting Changes

Recall from Chapter 4 that we account for a change in accounting principle retrospectively, meaning we recast prior years' financial statements when we report those statements again in comparative form. In other words, we make those statements appear as if the newly adopted accounting method had been used in those prior years. It's the same with interim reporting. We retrospectively report a change made during an interim period in similar fashion. Then in financial reports of subsequent interim periods of the same fiscal year we disclose how that change affected (a) income from continuing operations, (b) net income, and (c) related per share amounts for the postchange interim period.

Minimum Disclosures

Complete financial statements are not required for interim period reporting, but certain minimum disclosures are required as follows.²⁰

- Sales, income taxes, extraordinary items, and net income
- Earnings per share
- Seasonal revenues, costs, and expenses
- Significant changes in estimates for income taxes
- Discontinued operations, extraordinary items, and unusual or infrequent items
- Contingencies
- Changes in accounting principles or estimates
- Significant changes in financial position

When fourth quarter results are not separately reported, material fourth quarter events, including year-end adjustments, should be reported in disclosure notes to annual statements. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 5-1 What are the two general criteria that must be satisfied before a company can recognize revenue?
- Q 5-2 Explain why, in most cases, a seller recognizes revenue when it delivers its product rather than when it produces the product.
- Q 5-3 Revenue recognition for most installment sales occurs at the point of delivery of the product or service. Under what circumstances would a seller delay revenue recognition for installment sales beyond the delivery date?
- Q 5-4 Distinguish between the installment sales method and the cost recovery method of accounting for certain installment sales.

- Q 5-6 How much gross profit will Apache recognize in both 2006 and 2007?
- Q 5-7 Revenue recognition for novel product sales that allow the right of return occurs at the point of product delivery. Under what circumstances would revenue recognition be delayed?
- Q 5-8 Describe a subscription sale. When does a subscription recognize revenue for a subscription sale?
- Q 5-9 Service revenue is recognized either at one point in time or over extended periods. Explain the rationale for the recognition of revenue in each case.
- Q 5-10 Distinguish between the percentage-of-completion and completed-contract methods of accounting for long-term contracts with respect to income recognition. Under what circumstances should a company use the completed-contract method?
- Q 5-11 A contract calling for the construction of a building is completed by 90% of construction completion. How is this account reported in the balance sheet?
- Q 5-12 When is an estimated loss on a long-term contract recognized using the percentage-of-completion method? The completed-contract method?
- Q 5-13 One of the FASB guidelines in ASC 605-40-40 requires recognition of revenue from the sale of software.
- Q 5-14 Briefly describe the guidelines provided by SFAS 45 for the recognition of revenue by a franchisor for an initial franchise fee.
- Q 5-15 Show the calculation of the following activity ratios: (1) the receivables turnover ratio, (2) the inventory turnover ratio, and (3) the asset turnover ratio. What information about a company do these ratios offer?
- Q 5-16 Show the calculation of the following profitability ratios: (1) the profit margin on sales, (2) the return on assets, and (3) the return on shareholders' equity. What information about a company do these ratios offer?
- Q 5-17 Based on Appendix 3, interim reports are issued for periods of less than a year. Typically, is quarterly financial statements? Should these statements be viewed as separate periods or integral parts of the annual period?

EXERCISES

E 5-1

For delivery
recognized

E 5-2

For delivery
recognized

E 5-3

For delivery
recognized

E 5-4

For delivery
recognized

E 5-5

For delivery
recognized

E 5-6

For delivery
recognized

E 5-7

For delivery
recognized

E 5-8

For delivery
recognized

E 5-9

For delivery
recognized

On July 1, 2006, Apache Company sold a parcel of undeveloped land to a construction company for \$1,000,000. The book value of the land on Apache's books was \$200,000. Terms of the sale required a down payment of \$500,000 and 10 annual payments of \$150,000 plus interest at an appropriate interest rate due on each July 1 beginning in 2007. Apache has no significant obligation to perform services after the sale. How much gross profit will Apache recognize in both 2006 and 2007 applying the installment sales method?

Refer to the situation described in E 5-1. How much gross profit will Apache recognize in both 2006 and 2007 applying the installment sales method?

Refer to the situation described in E 5-1. How much gross profit will Apache recognize in both 2006 and 2007 applying the cost recovery method?

Refer to the situation described in E 5-1. What should be the balance in the deferred gross profit account at the end of 2007 applying the installment sales method?

Meyer Furniture sells office furniture mainly to corporate clients. Customers who return merchandise within 30 days for any reason receive a full refund. Discuss the issues Meyer must consider in determining its revenue recognition policy.

A construction company entered into a fixed-price contract to build an office building for \$50 million. Construction costs incurred during the first year were \$6 million and estimated costs to complete at the end of the year were \$4 million. How much revenue will the company recognize in the first year using the percentage-of-completion method? How much revenue will appear in the company's income statement?

BE 5-7

Percentage-of-completion method; balance sheet

• 04

BE 5-8

Completed contract method

• 04

BE 5-9

Percentage-of-completion and completed contract methods; loss on entire project

• 04

BE 5-10

Revenue recognition; franchise sales

• LOS

BE 5-11

Receivables and inventory turnover ratios

• 06

BE 5-12

Profitability ratios

• LOS

BE 5-13

Inventory turnover ratio

• 04

Refer to the situation described in BE 4-6. During the first year the company billed its customers \$7 million of which \$5 million was collected before year end. What would appear in the year-end balance sheet related to this contract?

Refer to the situation described in BE 5-8. The billing was completed during the second year. Company data included during the second year were \$40 million. How much gross profit will the company recognize in first year and in the second year applying the completed contract method?

Franklin Construction entered into a fixed-price contract to build a freeway-connecting strip for \$30 million. Construction costs incurred the first year were \$16 million and estimated costs to complete at the end of the year were \$17 million. How much gross profit or loss will Franklin recognize the first year applying the percentage-of-completion method? Applying the completed contract method?

Collins, Inc. entered into a 10-year franchise agreement with an individual. For an initial franchise fee of \$40,000, Collins agrees to assist in design and construction of the franchise location and in all other necessary start-up activities. Also, in exchange for advertising and promotional services, the franchisee agrees to pay continuing franchise fees equal to 5% of revenue generated by the franchise. What should Collins recognize revenue for the initial and continuing franchise fees?

Universal Calendar Company began the year with accounts receivable and inventory balances of \$50,000 and \$80,000, respectively. Year-end balances for these accounts were \$35,000 and \$60,000, respectively. Sales for the year of \$600,000 generated a gross profit of \$200,000. Calculate the receivables and inventory turnover ratios for the year.

The 2006 income statement for Anderson TV and Appliance reported sales revenue of \$420,000 and an income of \$60,000. Average total assets for 2006 was \$500,000. Shareholders' equity at the beginning of the year was \$500,000 and \$20,000 was paid to shareholders as dividends. There were no other shareholders' equity transactions that occurred during the year. Calculate the profit margin on sales, return on assets, and return on shareholders' equity for 2006.

During 2006, Rogac Corporation reported sales revenue of \$600,000. Inventory at both the beginning and end of the year totaled \$75,000. The inventory turnover ratio for the year was 6.0. What amount of gross profit did the company report in its income statement for 2006?

EXERCISES

An alternative exercise and problem set is available on the text website: www.mhhe.com/applacct2

E 5-1

Installment sales method

• 02

Charger Corporation, which began business in 2006, appropriately uses the installment sales method of accounting for its installment sales. The following data were obtained for sales made during 2006 and 2007:

| | 2006 | 2007 |
|---|-----------|-----------|
| Installment sales | \$768,000 | \$750,000 |
| Cost of installment sales | 234,000 | 245,000 |
| Cash collections on installment sales during: | | |
| 2006 | 150,000 | 100,000 |
| 2007 | | 180,000 |

Required:

- How much gross profit should Charger recognize in 2006 and 2007 from installment sales?
- What should be the balance in the deferred gross profit account at the end of 2006 and 2007?

[This is a variation of the previous exercise focusing on journal entries.]

E 5-2

Installment sales method; journal entries

• 03

Charger Corporation, which began business in 2006, appropriately uses the installment sales method of accounting for its installment sales. The following data were obtained for sales during 2006 and 2007:

| | 2006 | 2007 |
|--|-----------|-----------|
| Installation sales | \$380,000 | \$350,000 |
| Cost of installation sales | 234,000 | 205,000 |
| Cash collections on installation sales during: | | |
| 2006 | 180,000 | 100,000 |
| 2007 | — | 120,000 |

Required

Prepare summary journal entries for 2006 and 2007 to account for the installation sales and cash collections. The company uses the perpetual inventory system.

On July 1, 2006, the Foster Company sold inventory to the Slat Corporation for \$200,000. Terms of the sale called for a down payment of \$75,000 and three annual installments of \$75,000 due on each July 1, beginning July 1, 2007. Each installment also will include interest on the unpaid balance applying an appropriate interest rate. The inventory cost Foster \$10,000. The company uses the perpetual inventory system.

Required

1. Prepare the amount of gross profit to be recognized from the installment sale in 2006, 2007, 2008, and 2009 using point of delivery revenue recognition. Ignore interest charges.
2. Repeat requirement 1 applying the installment sales method.
3. Repeat requirement 1 applying the cost recovery method.

4. This is a variation of the previous exercise focusing on journal entries.

On July 1, 2006, the Foster Company sold inventory to the Slat Corporation for \$200,000. Terms of the sale called for a down payment of \$75,000 and three annual installments of \$75,000 due on each July 1, beginning July 1, 2007. Each installment also will include interest on the unpaid balance applying an appropriate interest rate. The inventory cost Foster \$10,000. The company uses the perpetual inventory system.

Required

1. Prepare the necessary journal entries for 2006 and 2007 using point of delivery revenue recognition. Ignore interest charges.
2. Repeat requirement 1 applying the installment sales method.
3. Repeat requirement 1 applying the cost recovery method.

Wolf Computer Company began operations in 2006. The company allows customers to pay its installments for many of its products. Installment sales for 2006 were \$1,000,000. If revenue is recognized at the point of delivery, \$600,000 in gross profit would be recognized in 2006. If the company instead used the cost recovery method, \$100,000 in gross profit would be recognized in 2006.

Required

What is the amount of cash collected from installment sales in 2006?

What amount of gross profit would be recognized if the company uses the installment sales method?

On April 1, 2006, the Apex Corporation sold a parcel of underdeveloped land to the Applepie Construction Company for \$2,400,000. The book value of the land on Apex's books was \$400,000. Terms of the sale required a down payment of \$120,000 and 9 annual payments of \$200,000 plus interest at an appropriate interest rate due on each April 1 beginning in 2007. Apex has no significant obligations to perform services after the sale.

Required

1. Prepare the necessary entries for Apex to record the sale, receipt of the down payment, and receipt of the first installment assuming that Apex is able to make a reliable estimate of possible uncollectible amounts (that is, point of delivery profit recognition is used). Ignore interest charges.
- Repeat requirement 1 assuming that Apex cannot make a reliable estimate of possible uncollectible amounts and decides to use the installment sales method for profit recognition.

North Webster contracted to provide a customer with Internet infrastructure for \$2,000,000. The project began in 2006 and was completed in 2007. Data relating to the contract are summarized below.

| | 2006 | 2007 |
|---|------------|-------------|
| Costs incurred during the year | \$ 200,000 | \$1,575,000 |
| Estimated costs to complete as of 12/31 | 1,200,000 | 0 |
| Billings during the year | 300,000 | 1,620,000 |
| Cash collections during the year | 250,000 | 1,750,000 |

Required

1. Compute the amount of gross profit or loss to be recognized in 2006 and 2007 using the percentage-of-completion method.
- Compute the amount of gross profit or loss to be recognized in 2006 and 2007 using the completed-contract method.

The Role of Accounting as an Information System

- Prepare a partial balance sheet to show how the information related to this contract would be presented at the end of 2006 using the percentage-of-completion method.
- Prepare a partial balance sheet to show how the information related to this contract would be presented at the end of 2006 using the completed-contract method.

E 5-4
Long-term contract: percentage of completion and completed-contract methods

• LO 1

On June 5, 2006, Sanderson Construction entered into a long-term construction contract to build a baseball stadium in Washington, D.C., for \$420 million. The expected completion date is April 1 of 2008, just in time for the 2008 baseball season. Costs incurred and estimated costs to complete at year-end for the life of the contract are as follows (\$ in millions):

| | 2006 | 2007 | 2008 |
|---|-------|------|------|
| Costs incurred during the year | \$ 40 | \$80 | \$50 |
| Estimated costs to complete as of 12/31 | 120 | 60 | — |

Required:

- Determine the amount of gross profit or loss to be recognized in each of the three years using the percentage-of-completion method.
- How much revenue will Sanderson report in its 2006 and 2007 income statements related to this contract using the percentage-of-completion method?
- Determine the amount of gross profit or loss to be recognized in each of the three years using the completed-contract method.
- Suppose the estimated costs to complete at the end of 2007 are \$80 million instead of \$60 million. Determine the amount of gross profit or loss to be recognized in 2007 using the percentage-of-completion method.

E 5-9
The percentage-of-completion method: costs completed or incurred

• LO 1

In February 2006, Arrow Construction Company entered into a three-year construction contract to build a bridge for a price of \$4,000,000. During 2006, costs of \$2,000,000 were incurred with estimated costs of \$4,000,000 yet to be incurred. Billings of \$2,400,000 were sent and cash collected was \$2,200,000.

In 2007, costs incurred were \$2,500,000 with remaining costs estimated to be \$3,600,000. 2007 billings were \$2,750,000 and \$2,475,000 cash was collected. The project was completed in 2008 after additional billings of \$1,800,000 were collected. The company's fiscal year-end is December 31. Arrow uses the percentage-of-completion method.

Required:

- Calculate the amount of gross profit or loss to be recognized in each of the three years.
- Prepare journal entries for 2006 and 2007 to record the transactions described (credit various accounts for construction costs incurred).
- Prepare a partial balance sheet to show the presentation of the project as of December 31, 2006 and 2007.

(This is a variation of the previous exercise focusing on the completed-contract method.)

In February 1, 2006, Arrow Construction Company entered into a three-year construction contract to build a bridge for a price of \$4,000,000. During 2006, costs of \$2,000,000 were incurred with estimated costs of \$4,000,000 yet to be incurred. Billings of \$2,400,000 were sent and cash collected was \$2,200,000.

In 2007, costs incurred were \$2,500,000 with remaining costs estimated to be \$3,600,000. 2007 billings were \$2,750,000 and \$2,475,000 cash was collected. The project was completed in 2008 after additional costs of \$1,800,000 were incurred. The company's fiscal year-end is December 31. Arrow uses the completed-contract method.

Required:

- Calculate the amount of gross profit or loss to be recognized in each of the three years.
- Prepare journal entries for 2006 and 2007 to record the transactions described (credit various accounts for construction costs incurred).
- Prepare a partial balance sheet to show the presentation of the project as of December 31, 2006 and 2007.

Ready Construction Company contracted to build an apartment complex for a price of \$5,000,000. Construction began in 2006 and was completed in 2008. The following are a series of independent transactions numbered through 6, involving different costs for the project. All costs are stated in thousands of dollars.

E 5-11
Various costs: recognition, percentage-of-completion, and completed-contract methods compared

• LO 1

| Shanghai | Costs Incurred During Year | | | Estimated Costs to Complete (As of the End of the Year) | | |
|----------|----------------------------|---------|-------|---|-------|------|
| | 2006 | 2007 | 2008 | 2006 | 2007 | 2008 |
| 1 | \$500 | \$4,000 | \$900 | \$3,000 | \$900 | — |
| 2 | 1,500 | 900 | 2,400 | 1,000 | 2,400 | — |
| 3 | 500 | \$4,000 | 1,600 | 3,000 | 1,500 | — |
| 4 | 500 | 3,000 | 1,000 | 3,500 | 800 | — |
| 5 | 500 | 3,000 | 1,000 | 3,500 | 1,500 | — |
| 6 | 500 | 1,000 | 800 | 4,600 | 700 | — |

Problems

Copy and complete the following table.

| Situation | Gross Profit (Loss), Recognized | | | | | |
|-----------|---------------------------------|-----|------|--------------------|------|------|
| | Percentage of completion | | | Completed Contract | | |
| | 2006 | 201 | 2008 | 2006 | 2007 | 2008 |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |

In 2006, Long Construction Corporation began construction work under a three-year contract. The contract price is \$1,200,000. Long uses the percentage-of-completion method for financial reporting purposes. The financial statement presentation relating to this contract at December 31, 2006, is as follows:

| Balance Sheet | | |
|---|------------------------|------------|
| Assets | Liabilities and Equity | |
| Accounts receivable from construction progress billings | | \$20,000 |
| Costs in excess of billings | | \$100,000 |
| Less: Billings on construction contract | | (\$84,000) |
| Cost of uncompleted contracts in excess of billings | | 6,000 |
| Income Statement | | |
| Income (before tax) on the contract recognized in 2006 | | \$26,000 |

Required:

- What was the cost of construction actually incurred in 2006?
- How much cash was collected in 2006 on this contract?
- What was the estimated cost to complete at the end of 2006?
- What was the estimated percentage of completion used to calculate income in 2006?

ABC PA solutions

Easywrite Software Company shipped software to a customer in July 1, 2006. The arrangement with the customer also requires the company to provide technical support over the next 12 months and to ship an expected software upgrade on January 1, 2007. The total contract price is \$243,000 and Easywrite estimates that the individual fair values of the components of the arrangement if sold separately would be:

| | |
|-------------------|-----------|
| Software | \$210,000 |
| Technical support | 30,000 |
| Upgrade | 3,000 |

Required:

- Determine the timing of revenue recognition for the \$243,000.
- Assume that the \$243,000 contract price was paid in advance on July 1, 2006. Prepare a journal entry to record the cash receipt and to allocate the costs to the items sold.

On January 1, 2006, the Submarine Sandwich Company entered into a franchise agreement with an individual in exchange for an initial franchise fee of \$100,000. Submarine will provide initial services to the franchisee to include assistance in design and construction of the building, help in training employees, help in obtaining financing, and management services over the first five years of the 10-year franchise agreement.

75% of the initial franchise fee is payable on October 1, 2006, with the remaining \$25,000 payable in nine equal annual installments beginning on October 1, 2007. These installments will include interest at an appropriate rate. The franchise opened for business on January 1, 2007.

Required:

Assume that the initial services to be performed by Submarine Sandwich subsequent to October 1, 2006, are uniform and that collectibility of the installment receivable is reasonably certain. Submarine's performance of the initial services is deemed to have occurred when the franchise opened. Prepare the necessary journal entries for the following dates, ignoring initial charges:

- October 1, 2006
- January 1, 2007

The following questions dealing with revenue recognition are adapted from questions that appeared in CPA examinations. Determine the response that best completes the statements or questions.

Drew Co. produces expensive equipment for sale on installment contracts. When there is doubt about eventual collectibility, the income recognition method most likely to overstate income is

The Role of Accounting as an Information System

- At the time the equipment is completed.
 - The installment method.
 - The cost recovery method.
 - The percentage-of-completion method.
2. Hill Company began operations on January 1, 2006, and appropriately uses the installment method of accounting. Data available for 2006 are as follows:

| | |
|--|-----------|
| Installment accounts receivable | \$500,000 |
| Installment sales | 700,000 |
| Cost of goods sold—percentage of sales | 67% |

Using the installment method, Hill's net realizable gross profit for 2006 would be

- \$700,000
- \$100,000
- \$100,000
- \$0

Questions 3 and 4 are based on the following data pertaining to Pell Co.'s construction jobs, which commenced during 2006.

| | Project 1 | Project 2 |
|-------------------------------------|-----------|-----------|
| Contract price | \$420,000 | \$300,000 |
| Cost incurred during 2006 | 240,000 | 280,000 |
| Estimated costs to complete | 120,000 | 40,000 |
| Billed to customers during 2006 | 150,000 | 270,000 |
| Received from customers during 2006 | 90,000 | 250,000 |

- If Pell used the completed contract method, what amount of gross profit (loss) would Pell report on its 2006 income statement?
 - \$0
 - \$0
 - \$240,000
 - \$420,000
- If Pell used the percentage-of-completion method, what amount of gross profit (loss) would Pell report on its 2006 income statement?
 - \$120,000
 - \$120,000
 - \$120,000
 - \$420,000

E 5-6

Concepts: terminology

- 100 through 104

Items below are general terms and phrases associated with revenue recognition and profitability analysis. Match each item from List A to the item from List B that is most appropriately associated with it.

List A

- Inventory turnover
- Return on assets
- Return on shareholders' equity
- Profit margin on sales
- Cost recovery method
- Percentage-of-completion method
- Completed contract method
- Asset turnover
- Receivables turnover
- Days of sales
- Billings on construction contract
- Net income sales turnover
- Installment sales

List B

- Net income divided by net sales
- Defers recognition until all collection requirements are met
- Defers recognition until project is complete
- Net income divided by assets
- Risk and rewards of ownership retained by seller until a substantial construction in progress
- Net income divided by shareholders' equity
- Cost of goods sold divided by inventory
- Recognition is in proportion to work completed
- Recognition is in proportion to cash received
- Net sales divided by assets
- Net sales divided by accounts receivable
- Could cause the deferral of revenue recognition beyond delivery point

E 5-17

Inventory turnover calculation and evaluation

- 106

The following is a portion of the condensed income statement for Rainbow Inc., a manufacturer of power

| | | |
|---------------------------|------------|-------------------|
| Net sales | | \$2,460,000 |
| Less: Cost of goods sold: | | |
| Inventory, January 1 | \$ 130,000 | |
| Net purchases | 1,500,000 | |
| Inventory, December 31 | (670,000) | |
| Gross profit | | <u>\$ 760,000</u> |

5-4-B
Evaluating efficiency of asset management

LO 4

Required:

1. Determine Lohan's inventory turnover.
2. What information does this ratio provide?

The 2006 income statement of Anderson Medical Supply Company reported net sales of \$11 million, cost of goods sold of \$4.8 million, and net income of \$3,200,000. The following table shows the company's simplified balance sheet as of December 31, 2006.

| | (\$ in 000s) | |
|---|----------------|----------------|
| | 2006 | 2005 |
| Assets | | |
| Cash | \$ 300 | \$ 180 |
| Accounts receivable | 700 | 800 |
| Inventory | 900 | 700 |
| Property, plant, and equipment, net | 2,400 | 2,700 |
| Total assets | \$4,300 | \$3,380 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | \$ 960 | \$ 830 |
| Bonds payable | 1,200 | 1,200 |
| Paid-in capital | 1,000 | 1,000 |
| Retained earnings | 1,140 | 670 |
| Total liabilities and shareholders' equity | \$4,300 | \$3,700 |

Three industry averages for Anderson's line of business are:

| | |
|---------------------------|-----------|
| Inventory turnover | 5 times |
| Average collection period | 25 days |
| Asset turnover | 1.8 times |

5-5-10

Assess Anderson's asset management relative to its industry.

LO 4

Profitability ratios

LO 5

The following condensed information was reported by Peabody Toys, Inc., for 2006 and 2005.

| | (\$ in 000s) | |
|---|----------------|----------------|
| | 2006 | 2005 |
| Income statement information | | |
| Net sales | \$5,200 | \$4,200 |
| Net income | 180 | 24 |
| Balance sheet information | | |
| Current assets | \$ 800 | \$ 750 |
| Property, plant, and equipment, net | 1,100 | 950 |
| Total assets | \$1,900 | \$1,700 |
| Current liabilities | \$ 600 | \$ 450 |
| Long-term liabilities | 750 | 750 |
| Paid-in capital | 400 | 400 |
| Retained earnings | 150 | 105 |
| Liabilities and shareholders' equity | \$1,900 | \$1,700 |

Required:

1. Determine the following ratios for 2006:
 - a. Profit margin on sales
 - b. Return on assets
 - c. Return on shareholders' equity
2. Determine the amount of dividends paid to shareholders during 2006.

The following questions dealing with income measurement are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides certification with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

1. On May 28, Market Company purchased a printing machine from Arons and Associates for \$100,000 payable as follows: 40 percent cash, 20 percent on June 15, and 40 percent due June 30. The cost of the machine to Arons is \$80,000; Market paid Arons \$50,000 for the equipment during the year ended

5-5-10
Multiple choice: CMA
on income recognition, average-of-cost method

LO 5-10

percentage of the machine. On June 30, 2015, Ansis determined that a change in the business environment has created a great deal of uncertainty regarding the collection of the balance due from Marisol, and the amount is probably uncollectible. Ansis and Marisol have a fiscal year-end of May 31. The revenue recognized by Ansis and Associates in May 2015 is:

- \$100,000
- \$100,000
- \$100,000
- \$0

- The percentage-of-completion method of accounting for long-term construction contracts is in compliance with:
 - Matching principle
 - Cost of sales method
 - Revenue recognition principle
 - Revenue recognition principle

- Kochling Construction signed a \$24 million contract on August 1, 2015 with the city of Cando to construct a bridge over the Vase River. Kochling's estimated cost of the bridge on that date was \$13 million. The bridge was to be completed by April 2016. Kochling uses the percentage-of-completion method for revenue recognition. Kochling's fiscal year ends May 31. Data regarding the bridge contract are presented in the schedule below.

| | At May 31 (\$100,000 omitted) | |
|-----------------------------|-------------------------------|----------|
| | 2015 | 2016 |
| Actual costs to date | \$ 6,000 | \$13,000 |
| Estimated costs to complete | 12,000 | 5,000 |
| Progress billings to date | 5,000 | 14,000 |
| Cash collected to date | 4,000 | 12,000 |

The gross profit or loss recognized in the fiscal year ended May 31, 2016 from this bridge contract is:

- \$6,000 (loss) gross profit
- \$7,000 (loss) gross profit
- \$7,000 (loss) gross profit
- \$1,000 (loss) gross profit

E 5-21

Interim financial statements: income tax expense (Based on Appendix 5)

- LO1

Juplin Manufacturing Corporation reported income before income taxes during the first three quarters and management's estimates of the annual effective tax rate at the end of each quarter as shown below:

| | Quarter | | |
|-------------------------------------|----------|----------|-----------|
| | First | Second | Third |
| Income before income taxes | \$50,000 | \$40,000 | \$100,000 |
| Estimated annual effective tax rate | 34% | 30% | 36% |

Required:

Determine the income tax expense to be reported in the income statement in each of the three quarterly reports.

E 5-22

Interim reporting: recognizing expenses (Based on Appendix 5)

- LO1

Security-Rank Corporation determines executive incentive compensation at the end of its fiscal year. At the end of the first quarter, management estimated that the amount will be \$300 million. Depreciation expense for the year is expected to be \$60 million. Also during the quarter, the company realized a gain of \$23 million from selling 40% of its manufacturing division.

Required:

What amounts for these items should be reported in the first quarter's income statement?

E 5-23

Interim financial statements: reporting expenses (Based on Appendix 5)

- LO1

Sticks Company is preparing its interim report for the second quarter ending June 30. The following expenditures were made during the first two quarters:

| Expenditure | Date | Amount |
|--------------------------------|----------|-----------|
| Annual advertising | January | \$800,000 |
| Quarterly bonus to the factory | February | 250,000 |
| Annual equipment repairs | March | 260,000 |
| Extraordinary casualty loss | April | 185,000 |
| Research and development | May | 94,000 |

Required:

For each expenditure indicate the quarter that would be reported in the quarterly income statements for periods ending March 31, June 30, September 30, and December 31.

PROBLEMS

PROBLEM 1
Statement of
equipment sales
method (problems 4
and 5)

6-12

6-13

6-14

PROBLEM 2
Statement of sales and
cost recovery methods

6-15

Excel

PROBLEM 3
Installment sales,
alternative recognition
methods

6-16

Excel

PROBLEM 4
Percentage-of-
completion method

6-17

Excel

An alternative service and provision set is available on the text website: www.inhew.com/spicedonlinetext

Begum Corporation completed its first fiscal year ending operations before income taxes at \$4,200,000 for 2006. The following material items have not yet been considered in the computations of income:

1. The company sold equipment and recognized a gain of \$50,000. The equipment had been used in the manufacturing process and was replaced by new equipment.
2. In December, the company received a settlement of \$1,000,000 for a lawsuit it had filed based on artificial violations of a contract. The settlement was considered to be an unusual and infrequent event.
3. Inventory costing \$400,000 was written off as obsolete. Material losses of this type were incurred twice in the last eight years.
4. It was discovered that depreciation expense on the office building of \$50,000 per year was not recorded in 2006.

In addition, you learn that included in revenues is \$600,000 from installment sales made during the year. The cost of these sales is \$740,000. At year-end, \$100,000 in cash had been collected on the related receivables receivables. Because of considerable uncertainty regarding the collectability of receivables from these sales, the company's accountant should have used the installment sales method to recognize revenue and gross profit on these sales.

Also, the company's income tax rate is 40% and there were 1 million shares of common stock outstanding throughout the year.

Required:

Prepare an income statement for 2006 beginning with income from continuing operations before income taxes. Include appropriate disclosures.

Alpha Company appropriately accounts for certain sales using the installment sales method. The perpetual inventory system is used. Information related to installment sales for 2006 and 2007 is as follows:

| | 2006 | 2007 |
|--------------------------------------|-----------|-----------|
| Sales | \$300,000 | \$400,000 |
| Cost of sales | 180,000 | 280,000 |
| Uncollectible accounts on 2006 sales | 24,000 | 100,000 |
| Cost of sales | | 50,000 |

Required:

1. Calculate the gross profit in 2006 and 2007 that would be recognized each year from installment sales.
2. Prepare all necessary journal entries for each year.
3. Repeat requirements 1 and 2 assuming that Alpha uses the cost recovery method to account for its installment sale.

On August 31, 2006, the Silva Company sold merchandise to the Benita Corporation for \$300,000. Terms of the sale called for a down payment of \$100,000 and four equal installments of \$50,000 due on each August 31, beginning August 31, 2007. Each installment also will include interest on the unpaid balance applying an appropriate interest rate. The book value of the merchandise on Silva's books on the date of sale was \$240,000. The perpetual inventory system is used. The company's fiscal year-end is December 31.

Required:

1. Prepare a table showing the amount of gross profit to be recognized in each of the five years of the installment sale applying each of the following methods:
 - a. Point-of-sale gross profit recognition
 - b. Installment sales method
 - c. Cost recovery method
2. Prepare journal entries for each of the five years applying the three revenue recognition methods listed in requirement 1. Ignore interest charges.
3. Prepare a partial balance sheet as of the end of 2006 and 2007 listing the items related to the installment sale applying each of the three methods listed in requirement 1.

In 2006 the Westgate Construction Company entered into a contract to construct a hotel for State College County for \$4,000,000. The hotel was completed in 2008. Information related to the contract is as follows:

| | 2006 | 2007 | 2008 |
|--|-------------|-------------|-------------|
| Cost incurred during the year | \$2,400,000 | \$3,600,000 | \$2,200,000 |
| Estimated costs to complete as of year-end | \$1,600,000 | \$1,000,000 | 0 |
| Billings received during the year | 2,000,000 | 4,000,000 | 4,000,000 |
| Cash collections during the year | 1,000,000 | 3,600,000 | 4,000,000 |

Wesgate uses the percentage-of-completion method of accounting for long-term construction contracts. Required:

1. Calculate the amount of gross profit to be recognized in each of the three years.
2. Prepare all necessary journal entries for each of the years' credit expense accounts for construction.
3. Prepare a partial balance sheet for 2006 and 2007 showing any assets related to the contract.
4. Calculate the amount of gross profit to be recognized in each of the three years assuming the following costs incurred had costs to complete information.

| | 2006 | 2007 | 2008 |
|--|-------------|-------------|-------------|
| Costs incurred during the year | \$2,400,000 | \$3,600,000 | \$3,200,000 |
| Estimated costs to complete as of year-end | 5,600,000 | 3,100,000 | 0 |

5. Calculate the amount of gross profit to be recognized in each of the three years assuming the following costs incurred and costs to complete information.

| | 2006 | 2007 | 2008 |
|--|-------------|-------------|-------------|
| Costs incurred during the year | \$2,400,000 | \$3,000,000 | \$3,900,000 |
| Estimated costs to complete as of year-end | 5,600,000 | 4,100,000 | 0 |

P 5-5

Completed contract method

• 04

P 5-6

Construction accounting, cost projected on entire project

• 04

Excel

This is a variation of the previous problem modified to focus on the completed contract method.

Required:

Complete the requirements of Problem 5-4 assuming that Wesgate Construction uses the completed contract method.

Curias Construction Company, Inc. entered into a fixed-price contract with Auelrud Associates on July 1, 2006, to construct a four-story office building. At that time, Curias estimated that it would take between two and three years to complete the project. The total contract price for construction of the building is \$4,000,000. Curias appropriately accounts for this contract under the completed contract method in its financial statements. The building was completed on December 31, 2008. Estimated percentage of completion, accumulated contract costs incurred, estimated costs to complete the contract, and accumulated billings to Auelrud under the contract were as follows:

| | At 12-31-06 | At 12-31-07 | At 12-31-08 |
|-----------------------------|-------------|-------------|-------------|
| Percentage of completion | 10% | 60% | 100% |
| Costs incurred to date | \$ 350,000 | \$2,500,000 | \$4,250,000 |
| Estimated costs to complete | \$1,550,000 | \$ 700,000 | 0 |
| Billings to Auelrud to date | 70,000 | 770,000 | 3,600,000 |

Required:

Prepare schedules to compute gross profit or loss to be recognized as a result of this contract in each of the three years.

Assuming Curias uses the percentage-of-completion method of accounting for long-term contracts, compute gross profit or loss to be recognized in each of the three years.

3. Assuming the percentage-of-completion method, compute the amount to be shown in the balance sheet at the end of 2006 and 2007 as either asset in excess of billings or billings in excess of costs.

20% 20% 20%

P 5-7

Franchise sales, installment sales method

• 04, 05

Olive Branch Restaurant Corporation franchises throughout the western states. On January 1, 2006, the company entered into the following franchise agreement with Japana Family Masters:

1. The initial franchise fee is \$30,000, with \$20,000 payable immediately and the remainder due in 10 \$3,000 installments, plus 1% interest on the unpaid balance each January 1, beginning April 30, 2007. The 0% interest rate is an appropriate market rate.

In addition to allowing the franchisee to use the franchise name for the 10-year term of the agreement, in exchange for the initial fee Olive Branch agrees to assist the franchisee in selecting a location, obtaining financing, designing and constructing the restaurant building, and hiring employees.

2. All of the initial down payment of \$20,000 is to be refunded by Olive Branch and the remaining obligation canceled if, for any reason, the franchisee fails to open the franchise.

3. In addition to the initial franchise fee, the franchisee is required to pay a monthly fee of 3% of franchise sales for advertising, promotion, menu planning, and other consulting services to be provided by Olive Branch over the life of the agreement. This fee is payable on the 10th of the following month.

Substantial performance of the initial services provided by Olive Branch, which are significant, is deemed to have occurred when the franchise opened on September 1, 2006. Franchise sales for the month of September 2006 were \$40,000.

Required

- a. Assuming that collectibility of the installment receivable is reasonably certain, prepare the necessary journal entries for Olive Branch on the following dates. Ignore interest charges on the installment receivable and the only other accounting entries are sales.

- January 30, 2006
- September 30, 2006
- September 30, 2006
- January 30, 2007

Assume that significant uncertainty exists as to the collectibility of the installment receivable and that Olive Branch elects to recognize initial franchise fee revenue using the installment sales method. Prepare the necessary journal entries for the dates listed in requirement 1. Ignore interest charges on the installment receivable and the costs of providing franchise services.

2-4
Calculating activity and
profitability ratios

5-15

Financial statements for Aster Industries for 2006 are shown below.

| 2006 Income Statement | | (\$ in 000s) |
|-----------------------|--|--------------|
| Sales | | 29,500 |
| Cost of goods sold | | (5,200) |
| Gross profit | | 2,700 |
| Operating expenses | | (2,300) |
| Interest expense | | 100 |
| Net income | | (200) |

| Comparative Balance Sheets | | |
|---|----------------|----------------|
| | Dec. 31 | |
| | 2006 | 2005 |
| Assets | | |
| Cash | \$ 600 | \$ 500 |
| Accounts receivable | 600 | 400 |
| Inventory | 800 | 600 |
| Property, plant, and equipment (net) | 2,000 | 2 00 |
| | <u>\$4,000</u> | <u>\$3,600</u> |
| Liabilities and Shareholders' Equity | | |
| Accounts payable | \$1 100 | \$ 850 |
| Bonds payable | 1,400 | 1,400 |
| Paid-in capital | 600 | 600 |
| Retained earnings | 600 | 600 |
| | <u>\$4,000</u> | <u>\$3,600</u> |

Required

Calculate the following ratios for 2006:

- Inventory turnover ratio
- Average days in inventory
- Receivables turnover ratio
- Average collection period
- Accounts payable
- Profit margin on sales
- Return on assets
- Return on shareholders' equity

5-6
Use of ratios to
compare two
companies in the same
industry

5-15

Problems below are condensed financial statements adapted from those of two actual companies competing in the pharmaceutical industry—Johnson and Johnson (J&J) and Pfizer, Inc. (in millions, except per share amounts).

Required

Evaluate and compare the two companies by responding to the following questions.

Note: Because two-year comparative statements are not provided, you should use year-end balances in place of average balances as appropriate.

- Which of the two companies appears more efficient in collecting its accounts receivable and managing its inventory?
- Which of the two firms had greater earnings relative to resources available?

3. Have the two companies achieved their respective rates of return on assets with similar combinations of profit margin and turnover?
4. From the perspective of a common stockholder, which of the two firms provided a greater rate of return?

Balance Sheets
(\$ in millions, except per share data)

| | J&J | Pfizer |
|--|-----------------|-----------------|
| Assets: | | |
| Cash | \$ 5,337 | \$ 0.527 |
| Short-term investments | 4,166 | 0.432 |
| Accounts receivable (net) | 8,574 | 8.75 |
| Inventories | 3,568 | 3.837 |
| Other current assets | 3,310 | 3.77 |
| Current assets | 24,955 | 20.741 |
| Property, plant, and equipment (net) | 9,846 | 8.287 |
| Intangible and other assets | 5,422 | 6.747 |
| Total assets | \$48,263 | \$ 6.775 |
| Liabilities and Shareholders' Equity: | | |
| Accounts payable | \$ 4,966 | \$ 2.401 |
| Short-term notes | 1,120 | 8.84 |
| Other current liabilities | 7,343 | 14 |
| Current liabilities | 13,429 | 21.427 |
| Long-term debt | 2,555 | 5.55 |
| Other long-term liabilities | 4,997 | 2.465 |
| Total liabilities | 21,394 | 5.199 |
| Capital stock (par and additional paid-in capital) | 3,120 | 6.030 |
| Retained earnings | 30,503 | 29.702 |
| Accumulated other comprehensive income (loss) | (590) | 0 |
| Less: treasury stock and other equity adjustments | 66,164 | 3.5901 |
| Total shareholders' equity | 26,869 | 65.77 |
| Total liabilities and shareholders' equity | \$48,263 | \$ 6.775 |

Income Statements

| | J&J | Pfizer |
|-----------------------------------|-----------------|-----------------|
| Net sales | \$41,862 | \$ 45.03 |
| Cost of goods sold | 12,76 | 4.844 |
| Gross profit | 29,666 | 35.194 |
| Operating expenses | 19,763 | 20.406 |
| Other financial expenses—net | (365) | 3.64 |
| Income before taxes | 10,308 | 3.260 |
| Tax expense | 2.4 | 0.9 |
| Net income | \$ 7,197 | \$ 6.394 |
| Basic net income per share | \$ 2.42 | \$.27 |

Source: Cadbury Candy Company, 2006; Pfizer Inc., 2006.

P 3-10

Creating a balance sheet from ratios; Chapters 3 and 5

LO6

Cadbury Candy Company's income statement for the year ended December 31, 2006, reported interest expense of \$2 billion and income tax expense of \$ 2 million. Current assets listed in its balance sheet include cash, accounts receivable, and inventories. Property, plant, and equipment is the company's only noncurrent asset. Financial ratios for 2006 are listed below. Profitability and turnover ratios with balance sheet items in the denominator were calculated using year-end balances rather than averages.

| | | |
|--|-------------------------------------|----------|
| | Debt to equity ratio | 1.0 |
| | Current ratio | 2.0 |
| | Dividends ratio | 0 |
| | Times interest earned ratio | 17 times |
| | Return on assets | 10% |
| | Return on shareholders' equity | 20% |
| | Profit margin on sales | 5% |
| | Gross profit margin | 40% |
| | (gross profit divided by net sales) | |
| | Inventory turnover | 8 times |
| | Receivables turnover | 20 times |



Problem

Prepare a December 31, 2006, balance sheet for the Clatus Candy Company.

Presented below are condensed financial statements adapted from those of two actual companies competing as the primary players in a specialty area of the food manufacturing and distribution industry. All amounts, except per share amounts,

P 5-1
The two companies have the same industry. Prepare a balance sheet for the Clatus Candy Company.

Balance Sheets

| Assets | Metropolitan | Republic |
|---|------------------|------------------|
| Cash | \$ 79.8 | \$ 7.1 |
| Accounts receivable (net) | 422.7 | 375.1 |
| Prepaid expenses and other current assets | 500.0 | 625.0 |
| Property, plant, and equipment (net) | 2,000.0 | 2,000.0 |
| Intangibles and other assets | 700.0 | 600.0 |
| Total assets | \$4,102.5 | \$4,007.1 |
| Liabilities and Shareholders' Equity | | |
| Accounts payable | \$ 100.0 | \$ 50.0 |
| Short-term debt | 70.0 | 50.0 |
| Long-term debt | 500.0 | 500.0 |
| Deferred tax liability | 300.0 | 300.0 |
| Other long-term liabilities | 100.0 | 95.0 |
| Total liabilities | \$1,070.0 | \$1,095.0 |
| Common stock (par and additional paid-in capital) | 1,000.0 | 1,000.0 |
| Retained earnings | 2,032.5 | 2,912.1 |
| Total liabilities and shareholders' equity | \$4,102.5 | \$4,007.1 |

Income Statements

| | Metropolitan | Republic |
|----------------------|--------------|-----------|
| Net sales | \$5,000.0 | \$7,000.0 |
| Cost of goods sold | (2,500.0) | (3,000.0) |
| Gross margin | \$2,500.0 | \$4,000.0 |
| Operating expenses | (1,000.0) | (1,000.0) |
| Interest expense | (50.0) | (50.0) |
| Income before taxes | \$1,450.0 | \$2,950.0 |
| Tax expense | (250.0) | (250.0) |
| Net income | \$1,200.0 | \$2,700.0 |
| Net income per share | \$1.20 | \$2.70 |

Problem

Evaluate and compare the two companies by responding to the following questions.

Note: Because comparative statements are not provided you should use year-end balances in place of average balances as appropriate.

- Which of the two firms had greater earnings, relative to resources available?
- Have the two companies achieved their respective rates of return on assets with similar combinations of profit margin and turnover?
- From the perspective of a common shareholder, which of the two firms provided a greater rate of return?
- Which company is more highly leveraged and which has made more effective use of financial leverage?
- Of the two companies, which appears riskier in terms of its ability to pay short-term obligations?
- How differently do current assets compare?

From the perspective of a creditor, which company offers the most comfortable margin of safety in terms of its ability to pay fixed interest charges?

Reynolds Electronics Company is a small, publicly traded company preparing its first quarter interim report to be mailed to shareholders. The following information for the quarter has been compiled:

| | |
|---------------------------------|------------------|
| Revenues | \$100,000 |
| Cost of goods sold | 35,000 |
| Operating expenses: | |
| Fixed | \$60,000 |
| Variable | 40,000 |
| Total operating expenses | \$100,000 |

P 5-2
The financial statements for Reynolds Electronics Company are as follows:

Fixed supervising expenses include payments of \$50,000 by the advertising firm to promote the firm through various media throughout the year. The income tax rate for the firm is based on operations in the first quarter is 30%, but management estimates the effective rate for the entire year will be 26%.

Required

1. Prepare the journal entries for the first quarter of the first month.

BROADEN YOUR PERSPECTIVE



Case Study 5-4 Sunbeam's Revenue Recognition and Earnings Management

LO 1

Apply your critical thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

In May 2001, the Securities and Exchange Commission sued the former top executives at Sunbeam, charging the group with financial reporting fraud that allegedly cost investors billions in losses. Sunbeam president and chief executive officer, chairman of the board, and chief financial officer, along with several other senior executives, had been accused of manipulating the company's financial statements to artificially inflate earnings and stock price. The suit alleged that Sunbeam needed help to stay afloat after a sharp decline in sales in 1997, which prompted a restructuring plan that included a 40% reduction in staff. The suit also alleged that the company had used a "sell and hold" strategy to artificially inflate earnings and stock price.

The strategy appeared to work in 1997. Sunbeam's revenues had risen by 4 percent, however, sales of the best-selling product, the Food Saver, had declined. Sunbeam's stock price had risen 20 percent. The company had also reported a record profit in the third quarter of 1997, which usually fell best in the fourth quarter, as well as unusually high sales of barbecue grills for the fourth quarter. Soon after, Sunbeam announced a first-quarter loss of \$44.6 million, and Sunbeam's stock price fell 25 percent.

It eventually came to light that Sunbeam had been using a "sell and hold" strategy with its sales. This involved selling products at large discounts to retailers before they normally would buy them, then holding the products in third-party warehouses, with delivery at a later date.

Many felt Sunbeam had deceived shareholders by artificially inflating earnings and the company's stock price. A class-action lawsuit followed, alleging that Sunbeam and Dunlap violated federal securities laws by suggesting the motivation to inflate the earnings and stock price was to allow Sunbeam to complete a trade of millions of dollars of debt financing in order to complete some ongoing projects. Shareholders alleged damages when Sunbeam's subsequent earnings decline caused a huge drop in the stock price.

Required

1. How might Sunbeam's 1997 "sell and hold" strategy have contributed to artificially high earnings in 1997?
2. How would the strategy have led to the unusually high accounts receivable Phineas Webster noted?
3. How might Sunbeam's 1997 "sell and hold" strategy have contributed to a 1998 earnings decline?
4. How does earnings management of this type affect earnings quality?

Revenue earned by a business enterprise is recognized for accounting purposes at different times, as a result of the circumstances. In some situations revenue is recognized approximately as it is earned in the economic sense. In other situations revenue is recognized at point of delivery.

Required

1. Explain and justify why revenue often is recognized as earned at point of delivery.
2. Explain in what situations it would be useful to recognize revenue as the productive activity takes place.
3. At what times, other than those indicated in 1 and 2 above, may it be appropriate to recognize revenue?

Judgment Case 5-3 Revenue recognition, trade-ins

LO 1

Apex Computer Company manufactures and sells large, mainframe computers. The computer range in price from \$1 to \$3 million and gross profit averages 40% of sales price. The company has a liberal trade-in policy. Customers are allowed to trade in their computer for a new computer. Customers with three years of use. The trade-in allowance granted will vary depending on the number of years between original sale and trade-in. However, in all cases, the allowance is expected to be approximately 25% but not more than the prevailing market price of the computer.

As an example, in 2006 a customer who purchased a computer in 2004 for \$2 million (the computer cost Apex \$ 200,000 to manufacture) decided to trade it in for a new computer. The sales price of the new computer was \$2.3 million and a trade-in allowance of \$400,000 was granted on the old machine. As a result of the trade-in allowance, the customer had to pay only \$1.9 million (\$2.3 million less \$400,000) for the new computer. The old computer taken back by Apex had a resale value of \$400,000. The new computer cost Apex \$ 2 million to manufacture. The company's cost of goods sold for the sale of the new computer is \$ 1.9 million (\$2 million cost of new computer - \$400,000 value of old computer).

Required:

Does the company's revenue recognition policy for trade-ins seem appropriate? If not, describe the problem created by the liberal trade-in policy.

Jerry's Ice Cream Parlor is considering a marketing plan to increase sales of ice cream cones. The plan will give customers a free ice cream cone if they buy 10 ice cream cones at regular prices. Customers will be issued a card that will be punched each time an ice cream cone is purchased. After 10 punches, the card can be turned in for a free cone.

Jerry Thompson, the company's manager, is not sure how the new plan will affect accounting procedures. He believes that the company will be incurring costs each time a free ice cream cone is awarded, but there will be no corresponding revenue or earnings inflow.

The focus of this case is the matching of revenues and expenses related to the free ice cream cones that will be awarded if the new plan is adopted. Your instructor will divide the class into two or three groups depending on the size of the class. The mission of your group is to reach consensus on the appropriate accounting treatment for the new plan.

Required:

Each group member should rehearse the situation independently and draft a persuasive argument prior to the class session for which the card is assigned.

- In class, each group will meet for 10-15 minutes for discussion areas of the classroom. During this meeting, group members will take turns sharing their suggestions for the purpose of arriving at a single group conclusion.
- After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's conclusion with the class. The goal of the class is to incorporate the views of each group into a consensus approach to the situation.

A recent article in *Accounting Horizons* describes the current accounting practices and disclosures for long-term contracts for the Fortune 500 companies.

In your library or from some other source, locate the featured article in *Accounting Horizons*, September 2004, and answer the following questions:

- How many firms reported the use of one of the two long-term contract accounting methods?
- Approximately half of the firms are in which industry?
- How many firms reported the use of the percentage-of-completion method? The completed contract method?
- What is the most frequently used approach to estimating a percentage-of-completion?

Harizon Corporation manufactures personal computers. The company began operations in 1999 and reported profits for the years 2001 through 2004. Due primarily to increased competition and price slashing in the industry, 2005's income statement reported a loss of \$20 million. Just before the end of the 2006 fiscal year, a decade from the company's start, financial officer to, in effect, the company controller, included the following comments:

If we don't do something about the large amount of unsold computers already manufactured, our cashiers will require us to write them off. The resulting loss for 2006 will cause a violation of our stock contracts and force the company into bankruptcy. I suggest that you ship half of our inventory in L.B. Sales, Inc., in Oklahoma City. I know the company's president and he will accept the merchandise and acknowledge the shipment as a purchase. We can record the sale in 2006 which will bring profits to an acceptable level. Then L.B. Sales will simply return the merchandise in 2007 after the financial statements have been issued.

Required:

Discuss the ethical dilemma faced by Tom Birdsey.

On October 1, 2006, the Mutual Company sold a large piece of machinery to the Hometown Construction Company for \$60,000. The cost of the machine was \$40,000. Harmon made a down payment of \$ 5,000 and agreed to pay the remaining balance in seven equal monthly installments of \$ 8,000, plus interest at 12% on the unpaid balance, beginning November.

Judgment Case 5-8

Revenue recognition
SAB 10, questions

LO 10

Research Case 5-9
Locate and extract relevant information and authoritative support for a financial reporting issue.

LO 11

Judgment Case 5-10

Revenue recognition
service sales

LO 10

Problem 5-1

- Identify three alternative methods for recognizing revenue and costs for the situation described and compute the amount of gross profit that would be recognized in 2016 using each method.
- Discuss the circumstances under which each of the three methods would be used.

Company M enters into a membership arrangement with its customers. Customers pay a fee of \$100 at the outset of the arrangement and receive a full refund of the initial fee. Based on historical data collected over time for a large number of homogeneous transactions, Company M estimates that approximately 40% of the customers will request a refund before the end of the membership contract term. Company M's data for the past five years indicates that significant variations between actual and estimated calculations have been observed, and Company M does not expect significant variations to occur in the foreseeable future.

Company M's data for the past five years indicates that significant variations between actual and estimated calculations have been observed, and Company M does not expect significant variations to occur in the foreseeable future.

e.g., \$35 at the outset of the arrangement. However, the customer has the unilateral right to cancel the arrangement at any time during its term and receive a full refund of the initial fee. Based on historical data collected over time for a large number of homogeneous transactions, Company M estimates that approximately 40% of the customers will request a refund before the end of the membership contract term. Company M's data for the past five years indicates that significant variations between actual and estimated calculations have been observed, and Company M does not expect significant variations to occur in the foreseeable future.

Question: May Company M recognize revenue for the membership fees and accrue the costs to provide membership services at the outset of the arrangement?

- Facts:** Company Z enters into an arrangement with Customer A to deliver Company Z's products to Customer A on a consignment basis. Pursuant to the terms of the arrangement, Customer A is a consignor, and title to the products does not pass from Company Z to Customer A until Customer A commences the products in its operations. Company Z delivers products to Customer A under the terms of the arrangement.

Question: May Company Z recognize revenue upon delivery of its product to Customer A?

- Facts:** Company R is a retailer that offers "layaway" sales to its customers. Company R retains the merchandise sold to its customers in its inventory, and collects a cash deposit from the customer. Although Company R may set a time period within which the customer must finalize the purchase, Layaway R does not require the customer to enter into an installment sale or other fixed payment commitment or agreement when the initial deposit is received. The merchandise generally is not released to the customer until the final payment is received. Company R does not have the right to return the merchandise to its inventory if the customer fails to complete the purchase.

Question: When may Company R recognize revenue for merchandise sold under its layaway program?

Many companies sell products allowing their customers the right to return merchandise if they are not satisfied. Because the return of merchandise can retroactively negate the benefits of having made a sale, the seller must be able to make reliable estimates of future returns. The FASB requires that the seller must be able to make reliable estimates of future returns.

Question: Obtain the original SABs on all. You might gain access through FARS, the FASB Financial Accounting Standards System, from your school library, or some other source.

- What factors does the standard discuss that may impair the ability to make a reasonable estimate of returns?
- List all six criteria that must be met before revenue can be recognized when the right of return exists, using Edgerton (edgerton.principlesofaccounting.com) as an example. The FASB requires for the most recent flow for Hewlett-Packard Company and for Advanced Micro Devices, Inc. Search for the recognition policy to determine when these two companies recognize revenue for product allowing customers the right of return.
- Using your knowledge of requirements 2 and 3, speculate as to why the two revenue recognition policies differ.

Facts: All of the following situations concern revenue recognition for services.

- Delta Airlines** books a reservation for a roundtrip flight to Orlando for Ming Tsou on April 12. Tsou changes the \$425 to Tsou's Visa card on April 13 and receives the cash from Visa on May 1. The roundtrip flight arranges on May 5. The ticket is non-refundable.

Delta Airlines books a reservation for a roundtrip flight to Orlando for Ming Tsou on April 12. Tsou changes the \$425 to Tsou's Visa card on April 13 and receives the cash from Visa on May 1. The roundtrip flight arranges on May 5. The ticket is non-refundable.

4. Janice Hawkins, attorney, agrees to accept an accident victim's case. Hawkins will be paid no contingency fee. That is, if she wins the case, she will receive 30% of the total settlement. The case concludes on July 15 and is settled successfully on August 15. On September 15 Hawkins receives her contingency payment of \$60,000.

Discussion

For each of the above scenarios, determine the appropriate timing of revenue recognition.

Two accounting students were discussing the alternative methods of accounting for long-term construction contracts. The discussion focused on which method was most like the typical revenue recognition method of recognizing revenue at point of product delivery. Bill argued that the completed contract method was preferable because it was analogous to recognizing revenue at the point of delivery. Julia disagreed and supported the percentage-of-completion method, stating that it was analogous to recording revenue during the contract process, that is, as the work was performed.

Discussion

Discuss the arguments made by both students. Which argument do you support? Why?

Willingham Construction is in the business of building high-priced, custom, single-family homes. The company, headquartered in Anaheim, California, operates throughout the Southern California area. The construction period for the average home built by Willingham is six months, although some homes have taken as long as eight months.

You have just been hired by Willingham as the assistant controller and one of your first tasks is to evaluate the company's revenue recognition policy. The company presently uses the completed contract method for all of its projects and management is now considering a switch to the percentage-of-completion method.

Write a two-stage memo to Virginia Reynolds, company controller, describing the differences between the percentage-of-completion and completed contract methods. Be sure to include references to GAAP as they pertain to the choice of method. Do not address the differential effects on income taxes nor the effect on the financial statements of switching between methods.

Electrolux, headquartered in Sweden, is the European leader in food-service equipment and the vacuum cleaner producer in the world. The revenue recognition disclosure, included in a recent financial statement with all of the notes,

General Accounting and Valuation Principles (in part)

Revenue Recognition

Sales revenue is recognized when all of the following conditions are met: (1) the sale is unconditional, (2) the goods are delivered, (3) the amount of revenue is measurable, and (4) the collection of the receivable is probable. If the goods are delivered but the amount of revenue is not measurable, revenue is recognized at the point of delivery. If the goods are delivered and the amount of revenue is measurable but the collection of the receivable is not probable, revenue is recognized when the receivable becomes collectible.

Revenue is recognized when all of the following conditions are met: (1) the sale is unconditional, (2) the goods are delivered, (3) the amount of revenue is measurable, and (4) the collection of the receivable is probable. If the goods are delivered but the amount of revenue is not measurable, revenue is recognized at the point of delivery. If the goods are delivered and the amount of revenue is measurable but the collection of the receivable is not probable, revenue is recognized when the receivable becomes collectible.

Required:

On the basis of the information the disclosure provides, compare revenue recognition in Sweden with that in the United States.

The following Troubled Case is recommended for use with this chapter. The case provides an excellent opportunity for class discussions, group projects, and writing assignments. The case along with Professor's Discussion Material can be obtained from the Detiche Foundation of its website at www.detiche.com.

Case 54-7: E-Discovery

This case concerns the appropriate timing of revenue recognition for a bundled product and service.

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated securities valuation, indexing, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. (Some foreign companies file voluntarily. Form 10-K or 10-KSB, which include the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.)

Required:

- Access EDGAR on the Internet. The web address is www.sec.gov/edgar. Edgar.com (www.edgar.com) makes the process of accessing data from EDGAR easier.
- Search for Jack in the Box, Inc. Access the latest recent 10-K filing. Search of actual to find the financial statements and related notes.

Analysis Case 5-16
Evaluating profitability and asset management objectives and compare annual reports from companies in the same industry.

• 10

Judgment Case 5-17
Relationships among ratios, Chapters 3 and 5

• 10

Integrating Case 5-18
Using ratios to test reasonableness of data, Chapters 3 and 5

• 10

3. Answer the following questions related to the company's revenue recognition policies:
 - a. When does the company recognize initial franchise license fee revenue?
 - b. How are advertising fees determined?
4. Repeat requirements 2 and 3 for two additional companies that you selected also earn revenues through the sale of franchise rights. Compare their revenue recognition policies with the policies of Jack in the Box.

Performance and profitability of a company often are evaluated using the financial information provided by a firm's annual report in comparison with other firms in the same industry. Ratios are useful in this assessment.

Obtain annual reports from two corporations in the same primary industry. Using techniques you learned in this chapter and any analysis you consider useful, respond to the following questions:

1. How do earnings usually compare in terms of both the direction and stability of increase?
2. Which of the two firms has greater earnings relative to resources available?
3. How efficient are current assets managed?
4. Has each of the companies achieved its respective target return on assets with similar combinations of profit margin and turnover?
5. Are there differences in accounting methods that should be taken into account when making comparisons?

Note: You can obtain copies of annual reports from friends, librarians and shareholders, the investor relations department of the corporations, from a friendly stockbroker, or from EDGAR (Electronic Data Gathering, Analysis, and Retrieval) on the Internet (www.sec.gov or through edgar.com.proxy.bald.com).

You are a part-time financial adviser. A client is considering an investment in a new recycling plant. One month ago, a rumor spread that the company made huge investments in a new fuel creation process. Unable to confirm the rumor, your client asks you to determine whether the firm's assets have enough in reserve to maintain it.

Because the firm is small, information is sparse. Last quarter's interim report showed total assets of \$75 million, approximately the same as last year's annual report. The only information more current than that is a press release last week in which the company's management reported "record net income for the year of \$2.5 million, representing a 4.0% return on shareholders' equity. Performance was enhanced by the company's judicious use of financial leverage on a debt/equity ratio of 2 to 1."

Required

Use the information available to provide your client with an opinion as to whether the waste recycling firm invested in the new fuel creation process during the last quarter of the year.

You are a new staff accountant with a large regional CPA firm, participating in your first audit. You recall an old auditing class instructor's warning about the risk of overlooking relationships in accounting numbers provided by the client. Since then, you've been particularly sharp in identifying relationships and uncovering hidden relationships. With audit, price ratios can be used to identify what critical balances should approximate. However, you never actually performed this kind of analysis until now. The CPA in charge of the audit of Crayington Pike Corporation brings you the list of ratios shown below and tells you these reflect the relationships maintained by Crayington Pike in recent years.

Profit margin on sales = 3%
Net income = \$1.0M
Gross profit margin = 40%
Inventory turnover ratio = 6 times
Receivables turnover ratio = 25
Acid-test ratio = 1.5
Current ratio = 2 to 1
Return on shareholders' equity = 10%
Debt to equity ratio = 1/3
Times interest earned ratio = 2 times

Included in the analysis are the following items:

- Net income: \$1.0M
- Only one long-term note (\$5,000). All other current liabilities are trade accounts.
- Property, plant, and equipment are the only noncurrent assets.
- Bonds payable are the only noncurrent liabilities.
- The effective interest rate on short-term notes and bonds is 6%.
- No discontinued operations.
- Cash balance totals \$15,000.

Features

You are requested to approximate the current year's financials in the form of a balance sheet and income statement, so the extent the information allows. Accompany these financial statements with the calculations you use to generate each annual report.

Analysis Edge 8-19

Income Statement
Profitability Analysis

Accounting

FedEx Corporation

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix B located at the back of this text.

Questions

1. What method does the company use to recognize revenue?
2. What percentage of total 2004 revenues was generated by international operations? (Hint: see Note 13.)
3. Compute the following ratios for 2004:
 - a. Receivables turnover ratio
 - Profit margin on sales
 - Return on assets
 - Return on shareholders' equity

CPA SIMULATION 8-1

Leibund Brothers
Recent Financials



Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulations at the end of each chapter in this text.

The Leibund Brothers simulation tests your knowledge of various accounting questions such as methods, including the installment sales method, the revenue recognition for long-term contracts, and the accounting for franchise sales.

As part of the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and general financial accounting standards to analyze facts, derive conclusions, and argument the conclusions related to the issue on a simulated examination. Included in the following interview are tasks:



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Specific tasks in the simulation address:

- Applying judgment in determining the revenue recognition method appropriate in various situations.
- Interpreting an understanding of the installment sales method.
- Determining the appropriate journal entries for a long-term contract accounted for using the percentage-of-completion method.
- Analyzing the effect on the income statement and balance sheet of applying the percentage-of-completion method.
- Communicating the financial statement effects of using the percentage-of-completion method.
- Researching the accounting treatment and disclosure requirements for franchise sales.

6

CHAPTER

Time Value of Money Concepts

LEARNING OBJECTIVES

After studying this chapter you should be able to:

- LO1 Explain the difference between simple and compound interest
- LO2 Compute the future value of a single amount
- LO3 Compute the present value of a single amount
- LO4 Solve for either the interest rate or the number of compounding periods when present value and future value of a single unit are known
- LO5 Explain the difference between an ordinary annuity and an annuity due situation
- LO6 Compute the future value of both an ordinary annuity and an annuity due
- LO7 Compute the present value of an ordinary annuity, annuity due, and a deferred annuity
- LO8 Solve for unknown values in annuity situations involving present value
- LO9 Briefly describe how the concept of the time value of money is incorporated into the valuation of bonds, loans, leases, and pension obligations

FINANCIAL REPORTING CASE



The Winning Ticket

Al Castellan had been buying California State lottery tickets for 16 years at his neighborhood grocery store. On Sunday, June 24, 2006, his world changed. When he awoke, opened the local newspaper and compared his lottery ticket numbers with Saturday Night's winning numbers, he couldn't believe his eyes. All of the numbers on his ticket matched the winning numbers. He went outside for a walk, came back into the kitchen and checked the numbers again. He woke his wife Carmen, told her what had hap-

pened, and they danced through their apartment. Al, a 66-year-old retired supermarket clerk, and Carmen, a 62-year-old semiretired secretary, had won the largest lottery in California's history, \$43 million.

On Monday when Al and Carmen claimed their prize, their ecstasy was waned slightly when they were informed that they would soon be receiving a check for approximately \$43 million. When the Castellanos purchased the lottery ticket, they indicated that they would like to receive any lottery winnings in one lump payment rather than in 26 equal annual installments beginning now. They knew beforehand that the State of California is required to withhold 21% of lottery winnings for federal income tax purposes, but this reduction was way more than 31%.

Source: "Al Castellan Wins \$43 Million," *Los Angeles Times*, July 1, 2006.

By the time you finish this chapter you should be able to identify and apply the concepts and techniques to the questions posed in this case. Compare your response to the solution provided at the end of the chapter.

Learning Objectives

1. Why were the Castellanos to receive \$43 million rather than the \$14 million lottery prize? (page 280)
2. What interest rate did the State of California use to calculate the \$43 million lump-sum payment? (page 286)
3. What are some of the accounting applications that incorporate the time value of money into valuation? (page 288)

PART A BASIC CONCEPTS

Time Value of Money

The time value of money means that money can be invested today to earn interest.

Time value of money concepts are useful in valuing several assets.

The key to solving the problems described in the financial reporting case is an understanding of the concept commonly referred to as the time value of money. This concept means that money invested today will grow to a larger dollar amount in the future. For example, \$1.00 invested in a savings account at your local bank yielding 6% annually will grow to \$1.06 in one year. The difference between the \$1.00 invested now—the present value of the investment—and its \$1.06 future value represents the time value of money.

This concept has nothing to do with the worth or buying power of those dollars. Prices in your community change if the inflation rate were higher than 6%. Then the \$1.06 you would have in the savings account actually would be worth less than the \$1.00 you had a year earlier. The time value of money concept concerns only the growth in the dollar amounts of money.

The concepts you will learn in this chapter are useful in solving many business decisions, such as, for example, the determination of the lottery award presented in the financial reporting case. More important, the concepts also are necessary when valuing assets and liabilities for financial reporting purposes. As you will see in this and subsequent chapters, most accounting applications that incorporate the time value of money involve the concept of present value. The valuation of leases, bonds, pension obligations, and certain notes receivable and payable are a few prominent examples. It is important that you master the concepts and tools we review here. This knowledge is essential to the remainder of your accounting education.

SIMPLE VERSUS COMPOUND INTEREST

Interest is the "rent" paid for the use of money for some period of time. In dollar terms, it is the amount of money paid or received in excess of the amount of money borrowed or lent. If you lent the bank \$100 today and "received" \$106 a year from now, your interest earned would be \$6. Interest also can be expressed as a rate at which money will grow. In this case, that rate is 6%. It is this interest that gives money its time value.

Simple interest is computed by multiplying an initial investment times both the applicable interest rate and the period of time for which the money is used. For example, simple interest earned each year on a \$1,000 investment paying 10% is \$100 (\$1,000 \times 10%).

Compound interest results in increasingly larger interest amounts for each period of the investment. The reason is that interest is now being earned not only on the initial investment amount but also on the accumulated interest earned in previous periods.

For example, Cindy Johnson invests \$1,000 in a savings account paying 10% interest compounded annually. How much interest will she earn each year, and what will be her investment balance after three years?

| Date | Interest
(Interest rate \times Outstanding
balance = Interest) | Balance |
|-----------------|--|---------|
| | | |
| Initial deposit | | \$1,000 |
| End of year 1 | 10% \times \$1,000 = \$100 | \$1,100 |
| End of year 2 | 10% \times \$1,100 = \$110 | \$1,210 |
| End of year 3 | 10% \times \$1,210 = \$121 | \$1,331 |

With compound interest at 10% annually, the \$1,000 investment would grow to \$1,331 at the end of the three-year period. Of course, if Cindy withdrew the interest earned each year, she would earn only \$100 in interest each year, that is, the amount of simple interest. If the investment period had been 20 years, 20 individual calculations would be needed. However, calculators, computer programs, and compound interest tables make these calculations much easier.

Most banks compound interest more frequently than once a year. Daily compounding is common for savings accounts. More rapid compounding has the effect of increasing the amount of interest earned.

the rate, which is called the **effective rate**, at which money grows per year. It is important to make that interest rate is usually stated as an annual rate regardless of the length of the compounding period involved. In situations when the compounding period is less than a year, the **effective rate per compounding period** is determined by dividing the annual rate by the number of periods. Assuming an annual rate of 12%:

| Compounded | Interest Rate Per Compounding Period | |
|--------------|--------------------------------------|----|
| Semiannually | 12% | 6% |
| Quarterly | 12% | 3% |
| Monthly | 12% | 1% |

As an example, now let's assume Cindy Johnson invested \$1,000 in a savings account paying 10% interest compounded twice a year. There are two six-month periods paying interest at 5% (the annual rate divided by two periods). How much interest will she earn the first year, and what will be her investment balance at the end of the year?

| Date | Interest
(Interest rate \times Outstanding
Balance = Interest) | Balance |
|------------------|--|------------|
| Initial deposit | | \$1,000.00 |
| After six months | 5% \times \$1,000 = \$50.00 | \$1,050.00 |
| End of year 1 | 5% \times \$1,050 = \$52.50 | \$1,102.50 |

The \$1,000 would grow by \$102.50, the interest earned, to \$1,102.50, \$2.50 more than if interest were compounded only once a year. The **effective annual interest rate**, often referred to as the **annual yield**, is 10.25% (\$102.50 \div \$1,000).

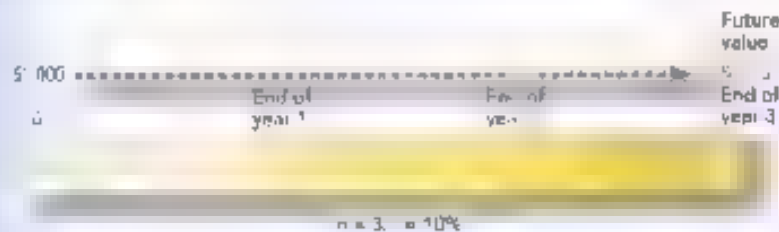
In the above example, the effective rate is 10.25%.

The **effective yield** is the rate at which an investment will grow over a year.

Valuing a Single Cash Flow Amount

FUTURE VALUE OF A SINGLE AMOUNT

In the first Cindy example, in which \$1,000 was invested for three years at 10% compounded annually, the \$1,331 is referred to as the **future value (FV)**. A time diagram is a good way to visualize this relationship, with 0 indicating the date of the initial investment.



• 102

The future value of a single amount is the value of a single amount at a future date.

The future value after one year can be calculated as $\$1,000 \times (1 + 10\% + 0) = \$1,100$. After three years, the future value is $\$1,000 \times 1.10 \times 1.10 \times 1.10 = \$1,331$. In fact, the future value of any invested amount can be determined as follows:

$$FV = 1 + (1 + r)^n$$

where FV = Future value of the invested amount
 1 = Amount invested at the beginning of the period
 r = Interest rate
 n = Number of compounding periods

The future value can be determined by using Table 1, **Future Value of \$1**, located in the end of this textbook. The table contains the future value of \$1 invested for various periods of time at various interest rates.

The future value of a single amount is the value of a single amount at a future date.

Graphic 6-1

Future Value of \$1
(excerpt from Table 1)

| Periods (n) | Interest Rates (i) | | | | | |
|-------------|--------------------|---------|---------|---------|---------|---------|
| | 7% | 8% | 9% | 10% | 11% | 12% |
| 1 | 1.07000 | 1.08000 | 1.09000 | 1.10000 | 1.11000 | 1.12000 |
| 2 | 1.14490 | 1.16640 | 1.19271 | 1.21000 | 1.23210 | 1.25440 |
| 3 | 1.22987 | 1.25971 | 1.29503 | 1.33100 | 1.36763 | 1.40493 |
| 4 | 1.32650 | 1.36849 | 1.41292 | 1.46933 | 1.51807 | 1.57052 |
| 5 | 1.42576 | 1.46933 | 1.51807 | 1.57052 | 1.62650 | 1.68603 |
| 6 | 1.52703 | 1.58687 | 1.64701 | 1.71034 | 1.77635 | 1.84501 |
| 7 | 1.63190 | 1.69933 | 1.76931 | 1.84242 | 1.91835 | 1.99704 |
| 8 | 1.74047 | 1.77733 | 1.85093 | 1.93816 | 2.02937 | 2.12488 |

With this table, it's easy to determine the future value of any invested amount simply by multiplying it by the table value at the intersection of the column for the desired rate and the row for the number of compounding periods. Graphic 6-1 contains an excerpt from Table 1.

The table shows various values of $(1 + i)^n$ for different combinations of i and n . From the table you can find the future value factor for three periods at 10% to be 1.331. This means that \$1 invested at 10% compounded annually will grow to approximately \$1.33 in three years. So, the future value of \$1,000 invested for three years at 10% is \$1,331.

$$\begin{aligned} \text{FV} &= \$1,000 \times \text{FV factor} \\ \text{FV} &= \$1,000 \times 1.331 = \$1,331 \\ \text{Future value of \$1 at } i = 10\% \end{aligned}$$

The future value function in financial calculators or in computer spreadsheet programs calculates future values in the same way. Determining future values (and present values) electronically avoids the need for tables such as those in the chapter appendix. It's important to remember that the n in the future value formula refers to the number of compounding periods, not necessarily the number of years. For example, suppose you wanted to know the future value two years from today of \$1,000 invested at 12% with quarterly compounding. The number of periods is therefore eight and the compounding rate is 3% (12% annual rate divided by four, the number of quarters in a year). The future value factor from Table 1 is 1.26677, so the future value is \$1,266.77 ($\$1,000 \times 1.26677$).

PRESENT VALUE OF A SINGLE AMOUNT

LO2

The example used to illustrate future value reveals that \$1,000 invested today is equivalent to \$1,100 received after one year, \$1,210 after two years, or \$1,331 after three years, assuming 10% interest compounded annually. Thus, the \$1,000 investment (P) is the present value (PV) of the single sum of \$1,331 to be received at the end of three years. It is also the present value of \$1,210 to be received in two years and \$1,100 in one year.

Remember that the future value of a present amount is the present amount times $(1 + i)^n$. Logically, then, that computation can be reversed to find the present value of a future amount is the future amount divided by $(1 + i)^n$. We substitute PV for P (invested amount) in the future value formula above:

$$\begin{aligned} \text{FV} &= PV(1 + i)^n \\ PV &= \frac{\text{FV}}{(1 + i)^n} \end{aligned}$$

When interest is compounded more frequently than annually, the effective annual interest rate is used (which is calculated every year).

When using the effective interest rate and the number of compounding periods, the formula for the present value of a future amount is:

$$PV = \frac{\text{FV}}{(1 + \text{Yield})^{\text{Periods}}}$$

Remember, the yield is useful when comparing yields on (different) investments with different compounding period lengths.

This is the present value of the future amount.

In our example

$$PV = \frac{\$1,331}{1.10^3} = \frac{\$1,331}{1.331} = \$1,000$$

Of course, dividing by $(1 + i)^n$ is the same as multiplying by its reciprocal, $1/(1 + i)^n$.

$$PV = \$1,331 \times \frac{1}{(1 + .10)^3} = \$1,331 \times .75131 = \$1,000$$

As with future value, these computations are simplified by using calculators, computer programs, or present value tables. Table 2, Present Value of \$1, located at the end of this textbook, provides the present value of \$1 at various interest rates and compounding periods (n). These amounts represent the present value of \$1 to be received at the end of the given period. The table is used to find the present value of any single amount to be received in the future. For example, to find the present value of \$1,000 to be received in three years at an interest rate of 10%, find the value in the table that corresponds to the appropriate rate and the row for the number of compounding periods. Graphic 6-2 contains an excerpt from Table 2.

| Periods (n) | Interest Rates | | | | | |
|-----------------|----------------|--------|--------|--------|--------|--------|
| | 7% | 8% | 9% | 10% | 11% | 12% |
| 1 | .93458 | .92593 | .91743 | .90909 | .90090 | .89286 |
| 2 | .87344 | .85734 | .84168 | .82645 | .81162 | .79719 |
| 3 | .81630 | .79383 | .77288 | .75261 | .73319 | .71432 |
| 4 | .76296 | .74002 | .71869 | .69833 | .67909 | .66067 |
| 5 | .71299 | .68958 | .66743 | .64632 | .62635 | .60743 |
| 6 | .66534 | .64101 | .61862 | .59733 | .57719 | .55803 |
| 7 | .62091 | .59549 | .57175 | .54927 | .52818 | .50820 |
| 8 | .57983 | .55367 | .52942 | .50726 | .48628 | .46628 |

GRAPHIC 6-2

Present Value of \$1
excerpt from Table 2

Notice that the further into the future the \$1 is to be received, the less valuable it is now. This is the essence of the concept of the time value of money. Given a choice between \$1,000 now and \$1,000 three years from now, you would choose to have the money now. If you have it now, you could put it to use. But the choice between, say, \$740 now and \$1,000 three years from now would depend on your time value of money. If your time value of money is 0%, you would choose the \$1,000 in three years, because the \$740 invested at 0% for three years would grow to only \$984.94 (\$740 \times 1.33 (FV of \$1, $i = 0\%$, $n = 3$). On the other hand, if your time value of money is 10% or higher, you would prefer the \$740 now. Presumably, you would invest the \$740 now and have it grow to \$1,020.25 (\$740 \times 1.36763) in three years.

Using the present value table above, the present value of \$1,000 to be received in three years, assuming a time value of money of 0% is \$751.31 (\$1,000 \times .75131 (PV of \$1, $i = 0\%$, and $n = 3$). Because the present value of the future amount, \$1,000, is higher than \$740 we could have today, we again determine that with a time value of money of 0%, the \$1,000 in three years is preferred to the \$740 now.

In our earlier example, \$1,000 now is equivalent to \$1,331 in three years, assuming the time value of money is 10%. Graphically, the relation between the present value and the future value can be viewed this way:



The calculation of future value involves the addition of interest earned over the time period. The calculation of present value involves the removal of interest earned over the time period. The calculation of present value is the reverse of the calculation of future value. The calculation of present value is the reverse of the calculation of future value. The calculation of present value is the reverse of the calculation of future value.

LO4

ILLUSTRATION 6-1 Determining When PV, FV, and *n* Are Known

While the calculation of future value of a single sum invested today requires the addition of compound interest, present-value problems require the *removal* of compound interest. The process of computing present value of the \$500 of interest earned over the three-year period from the future value of \$605 is the process of computing the present value (PV) of interest to the present value of \$500 to arrive at the future value of \$605.

As we demonstrate later in this chapter and in subsequent chapters, present-value calculations are important in many aspects of accounting, including the calculation of future value.

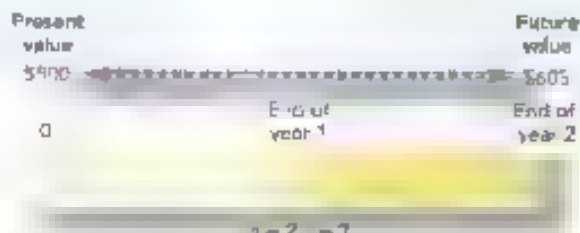
SOLVING FOR OTHER VALUES WHEN FV AND PV ARE KNOWN

There are four variables in the process of adjusting single cash flow amounts for the time value of money: the present value (PV), the future value (FV), the number of compounding periods (*n*), and the interest rate (*i*). If you know any three of these, the fourth can be determined. Illustration 6-1 solves for an unknown interest rate and Illustration 6-2 determines an unknown number of periods.

Determining the Unknown Interest Rate

Suppose a friend asked to borrow \$500 today and promises to repay you \$605 two years from now. What is the annual interest rate you should be agreeing to?

The following time diagram illustrates the situation:



The interest rate is the discount rate that will provide a present value of \$500 when discounting \$605 to be received in two years.

The unknown variable is the interest rate.

$$\$500 \text{ present value} = \$605 \text{ future value} \times \frac{1}{(1+i)^n}$$

Rearranging algebraically, we find that the present value table factor is .82645:

$$\$500 \text{ present value} \div \$605 \text{ future value} = .82645^*$$

When you consult the present value table, Table 2, you search row two (*n* = 2) for the value and find it in the 10% column. So the effective interest rate is 10%. Notice that the computed factor value exactly equals the table factor value.¹

¹If the calculated factor lies between published factors, interpolation is useful in finding the unknown value. For example, if the future value in our example is \$600, instead of \$605, the calculated PV factor is .83333 (\$500 ÷ \$600). This factor lies between the 9% factor of .81164 and the 10% factor of .82645. The total difference between these factors is .01573 (.84106 - .82645). The difference between the calculated factor of .83333 and the 9% factor of .81164 is .02169. The length of the difference between the 9% and 10% factors is .01573. Therefore, the interpolated interest rate is 9% + (.02169 ÷ .01573) × 1% = 10.39%.

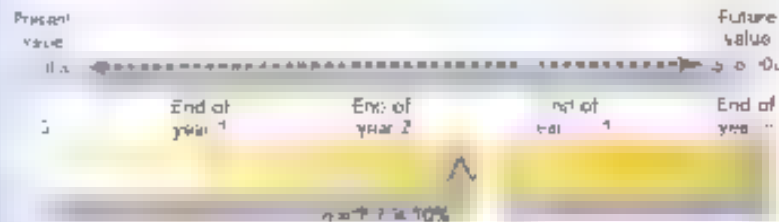
Therefore, the interpolated interest rate is 9% + .0139 = 10.39%.

Determining the Unknown Number of Periods

For example, if you invest \$10,000 today to accumulate \$16,000 for college school. If you earn a 10% interest rate compounded annually, how many years will it take to accumulate the required amount?

ILLUSTRATION 5-2
Determining n When PV , FV , and r Are Known

The following time diagram illustrates the situation:



The number of years is the value of n that will provide a present value of \$10,000 when discounting \$16,000 at a rate of 10%.

$$\begin{array}{l} \$10,000 \text{ (present value)} = \$16,000 \text{ (future value)} \times 7^{\text{th}} \\ \text{Present value} = \$10,000 \end{array}$$

The unknown variable is the number of periods.

Rearranging algebraically, we find that the present value table factor is .625.

$$\begin{array}{l} \$10,000 \text{ (present value)} \div \$16,000 \text{ (future value)} = .625^{\text{th}} \\ \text{Present value} = \$10,000 \end{array}$$

When you consult the present value table, Table 2, you search the 10% column ($i = 10\%$) for this value and find .62092 in row five. So it would take approximately five years to accumulate \$16,000 in the situation described.

ADDITIONAL CONSIDERATION

Solving for the unknown factor in either of these examples could just as easily be done using the future value tables. The number of years is the value of n that will provide a present value of \$10,000 when discounting \$16,000 at a 10% interest rate of 10%.

$$\begin{array}{l} \$16,000 \text{ (future value)} = \$10,000 \text{ (present value)} \times 7^{\text{th}} \\ \text{Future value} = \$16,000 \end{array}$$

Rearranging algebraically, the future value table factor is 1.6.

$$\begin{array}{l} \$16,000 \text{ (future value)} \div \$10,000 \text{ (present value)} = 1.6^{\text{th}} \\ \text{Future value} = \$16,000 \end{array}$$

When you consult the future value table, Table 3, you search the 10% column ($i = 10\%$) for this value and find 1.6051 in row five. So it would take approximately five years to accumulate \$16,000 in the situation described.

CONCEPT REVIEW EXERCISE

Using the appropriate table, answer each of the following independent questions.

- What is the future value of \$5,000 at the end of six periods at 6% compound interest?
- What is the present value of \$8,000 to be received eight periods from today assuming a compound interest rate of 12%?

VALUING A SINGLE CASH FLOW AMOUNT

PROBLEM
10-14

SOLUTION

- What is the present value of \$10,000 to be received two years from today assuming an annual interest rate of 24% and *monthly* compounding?
- If an investment of \$2,000 grew to \$2,520 in three periods, what is the interest rate at which the investment grew? Solve using both present and future value tables.
- Approximately how many years would it take for an investment of \$3,250 to accumulate to \$5,000, assuming interest is compounded at 10% annually? Solve using both present and future value tables.

$$1 \text{ FV} = \$5,000 \times \frac{1}{(1 + 0.24/12)^{24}} = \$3,924$$

*Future value of \$1, $n = 24$, $i = 2\%$ from table

$$2 \text{ PV} = \$2,000 \times \frac{1}{(1 + 0.08)^3} = \$1,231$$

$$3 \text{ PV} = \$5,000 \times \frac{1}{(1 + 0.10)^n} = \$3,250$$

*From Table 2, $n = 10$, $i = 10\%$ from table

- Using present value table

$$\frac{\$2,000}{\$2,520} = 0.7937^*$$

*Present value of \$1, $n = 3$, from table, $i = 8\%$

Using future value table,

$$\frac{\$2,520}{\$2,000} = 1.260^*$$

*Future value of \$1, $n = 3$, from table, $i = 8\%$

- Using present value table,

$$\frac{\$5,250}{\$5,000} = 1.05^*$$

*Present value of \$1, $n = 5$, $i = 10\%$ from Table 2, n is approximately 11 years

Using future value table

$$\frac{\$5,000}{\$3,250} = 1.538^*$$

*Future value of \$1, $n = 7$, $i = 10\%$ from Table 2, n is approximately 11 years

Preview of Accounting Applications of Present Value Techniques—Single Cash Amount

Kyle Peterson switched off his television set immediately after watching the Super Bowl game and swore to himself that this would be the last year he would watch the game on his 10-year-old 20-inch TV set. "Next year, a big screen TV," he promised himself. Soon after, he saw an advertisement in the local newspaper from Slim Jim's TV and Appliance offering a Philips 60-inch large screen television on sale for \$1,800. And the best part of the deal was that Kyle could take delivery immediately but would not have to pay the \$1,800 for the whole year! "In a year I can easily save the \$1,800," he thought.

In the above scenario, the seller, Slim Jim's TV and Appliance, records a sale when its TV is delivered to Kyle. How should the company value its receivable and recognize sales revenue? We provide a solution to this question at the end of this section on page 378. The following discussion will help you to understand that solution.

Many assets and most liabilities are monetary in nature. Monetary assets include money and claims to receive money, the amount of which is fixed or determinable. Examples include cash and notes receivables. Monetary liabilities are obligations to pay amounts of cash, the amount of which is fixed or determinable. Most liabilities are monetary. For example, if you borrow money from a bank and sign a note payable, the amount of cash to be repaid to the bank is fixed. Monetary receivables and payables are valued based on the fair amount of cash to be received or paid in the future with proper reflection of the time value of money. In other words, we value most receivables and payables at the present value of future cash flows, reflecting an appropriate time value of money.⁴

The example in Illustration 6-3 demonstrates this concept.

Monetary assets and monetary liabilities are valued at the present value of future cash flows.

⁴Interest on Receivables and Payables: Accounting Principles Board Standard No. 3, New York: AICPA, 1977.

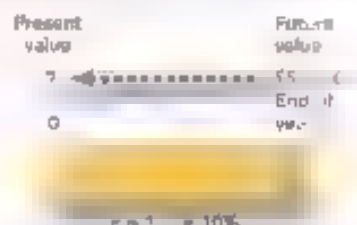
Explicit Interest

The Meadow Wholesale Shoe Company manufactures athletic shoes for sale to retailers. The company recently sold a large order of shoes to Harmon Sporting Goods for \$50,000. Stridewell agreed to accept a note in payment for the shoes requiring payment of \$55,000 in one year plus interest at 10%.

ILLUSTRATION 4-3

Valuing a Note: One Payment, Explicit Interest

How should Stridewell value the note receivable and Harmon accounting with revenue earned? How should Harmon value the note payable and corresponding inventory purchased? As long as the interest rate explicitly stated in the agreement properly reflects the time value of money, the answer is \$50,000, the face value of the note. It's important to realize that this amount also equals the present value of future cash flows at 10%. Future cash flows equal \$55,000 (\$50,000 in note principal plus \$5,000 in interest (\$50,000 \times 10%). Using a time diagram,



In EQUATION 4-1, we can solve for present value as follows:

$$\text{PV} = \$55,000 \div (1 + 0.10) = \$50,000 \text{ (present value)}$$

By calculating the present value of \$55,000 to be received in one year, the interest of 10% is removed from the future value, resulting in a proper note receivable/sales revenue for Stridewell and a \$50,000 note payable/inventory value for Harmon.

While most notes, loans, and mortgages explicitly state an interest rate that will properly reflect the time value of money, there can be exceptions. Consider the example in Illustration 4-4.

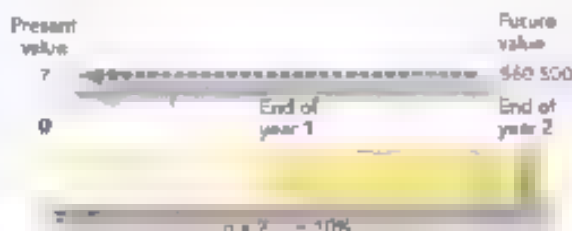
No Explicit Interest

The Meadow Wholesale Shoe Company recently sold a large order of shoes to Harmon Sporting Goods. Terms of the sale require Harmon to sign a noninterest-bearing note of \$60,500 with payment due in two years.

ILLUSTRATION 4-4

Valuing a Note: One Payment, No Explicit Interest

How should Stridewell and Harmon value the note receivable/payable and corresponding sales revenue/inventory? Even though the agreement states a noninterest-bearing note, the agreement, in fact, includes interest for the two-year period of the loan. We need to remove the interest portion of the \$60,500 to determine the portion that represents the sales price of the shoes. We do this by computing the present value. The following time diagram illustrates the solution assuming that a rate of 10% reflects the appropriate interest rate for a loan of this type.



Again, using the present value of \$ table,

$$\$112,500 (\text{future value}) \times .82643^* = \$93,000 (\text{present value})$$

*Present value of \$1: $n = 2$, $i = 10\%$

Both the note receivable for Sindewell and the note payable for Harrison initially will be valued at \$93,000. The interest on the \$112,500 note receivable (\$22,500) represents interest revenue/expense to be recognized over the life of the note. The appropriate journal entries are illustrated in later chapters.

Now can you answer the question posed in the scenario at the beginning of this section? Assuming that a rate of 10% reflects the appropriate interest rate in this situation, Slim Jim's TV and Appliances records a receivable and sales revenue of \$1,636 which is the present value of the \$1,800 to be received from K. L. Peterson one year from the date of sale.

$$\$1,800 (\text{future value}) \times .90909^* = \$1,636 (\text{present value})$$

*Present value of \$1: $n = 1$, $i = 10\%$ (from Table 2)

Expected Cash Flow Approach

Present value measurement has long been integrated with accounting valuation and is typically addressed in a general accounting course because of its increasing importance. In 2000, the FASB issued *Statement of Financial Accounting Concepts No. 7, "Using Cash Flow Information and Present Value in Accounting Measurements."*¹⁴ This statement provides a framework for using future cash flows as the basis for accounting measurement and asserts that the objective in valuing an asset or liability using present value is to approximate the fair value of that asset or liability, taking into account any uncertainty concerning the amounts and timing of the cash flows. Although future cash flows in many instances are contractual and certain, the amounts and timing of cash flows are less certain in other situations.

For example, lease payments are provided in the contract between lessor and lessee. On the other hand, the future cash flows to be paid to settle a pending lawsuit may be highly uncertain. Traditionally, the way uncertainty has been considered in present value calculations has been by using a higher discount rate if future cash flows appear a discount rate that has been adjusted to reflect the uncertainty or risk of those cash flows. With the approach described by SFAC No. 7, though, the adjustment for uncertainty or risk of cash flows is applied to the cash flows, not the discount rate. This new *expected cash flow approach* incorporates specific probabilities of future cash flows into the analysis. Consider Illustration 6-5.

Compare the approach described in Illustration 6-5 to the traditional approach that uses the present value of the most likely estimate of \$200 million and ignores information about cash flow probabilities.

The discount rate used to determine present value when applying the expected cash flow approach should be the *risk-free rate of interest*. Other elements of uncertainty are incorporated into the determination of the probability-weighted expected cash flows. In the traditional approach, elements of uncertainty are incorporated into a risk-adjusted discount rate.

The FASB expects that the traditional approach to calculating present value will continue to be used in many situations, particularly those where future cash flows are contractual. The Board also believes that the expected cash flow approach is more appropriate in more complex situa-

SFAC NO. 7

"While many accountants do not routinely use the expected cash flow approach, expected cash flows are inherent in the techniques used in some accounting measurements and judgments, other postretirement benefits, and employee insurance obligations."¹⁵

SFAC No. 7

| Asset | Liability | Equity |
|------------|------------|------------|
| Current | Current | Current |
| Noncurrent | Noncurrent | Noncurrent |

The risk-free rate of

| Asset | Liability | Equity |
|------------|------------|------------|
| Current | Current | Current |
| Noncurrent | Noncurrent | Noncurrent |

¹⁴ FASB, *Statement of Financial Accounting Concepts No. 7, "Using Cash Flow Information and Present Value in Accounting Measurements,"* issued October 2000. <http://www.fasb.org/concept7.htm>

¹⁵ FASB, *Statement of Financial Accounting Concepts No. 7, "Using Cash Flow Information and Present Value in Accounting Measurements,"* issued October 2000. <http://www.fasb.org/concept7.htm>

Illustration 8-5 illustrates the likelihood of having to pay an unknown amount in two years in connection with an environmental cleanup. The future cash flow is estimated to be in the range of \$100 million to \$300 million, with the following estimated probabilities:

| Loss Amount | Probability |
|---------------|-------------|
| \$100 million | 10% |
| \$200 million | 60% |
| \$300 million | 30% |

The expected cash flow, then, is \$220 million.

| | | |
|----------------------|-----|--------------|
| \$100 | 10% | \$10 million |
| 200 | 60% | 120 million |
| 300 | 30% | 90 million |
| \$220 million | | |

If the expected rate of interest is 4%, the company's liability, if it is \$220 million, the present value of the expected cash outflow

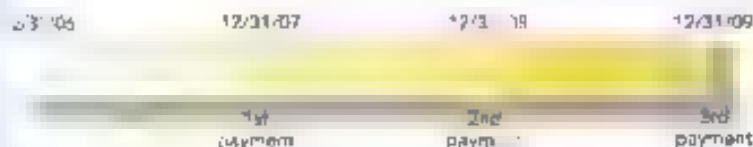
| |
|-----------------------|
| \$220,000,000 |
| 0.853* |
| \$187,660,000 |
| *Present value of \$1 |

and, in turn, the Board has incorporated the concepts developed in SFAC No. 7 into recent standards to make its retirement obligations, independent of its other business contributions, more certain. To illustrate the use of the expected cash flow approach as it would be applied to the measurement of an asset retirement obligation, in Chapter 9, we use the approach to measure the liability associated with a loss contingency.

Basic Annuities

The previous examples involved the receipt or payment of a single future amount. Financial instruments frequently involve multiple receipts or payments of cash. If the same amount is to be received or paid each period, the cash flows are referred to as an annuity. A common annuity encountered in practice is a loan on which periodic interest is paid in equal amounts. For example, bonds typically pay interest semiannually in an amount determined by multiplying a stated rate by a fixed principal amount. Some loans and deposit leases are paid in equal installments during a specified period of time.

An agreement that creates an annuity can produce either an ordinary annuity or an annuity due (sometimes referred to as an annuity in advance) situation. The first cash flow (receipt or payment) of an ordinary annuity is made one compounding period *after* the date at which the agreement begins. The final cash flow takes place on the *last* day covered by the agreement. For example, an installment note payable dated December 31, 2006, might require the holder to make three equal annual payments of \$100,000, the first payments due on December 31, 2007 and the last one on December 31, 2009. The following time diagram illustrates an ordinary annuity.



The first payment of an annuity due is made on the *first* day of the agreement, and the last payment is made one period *before* the end of the agreement. For example, a three-year lease

ILLUSTRATION 8-5
Expected Cash Flow
Approach

PART B

LO 3

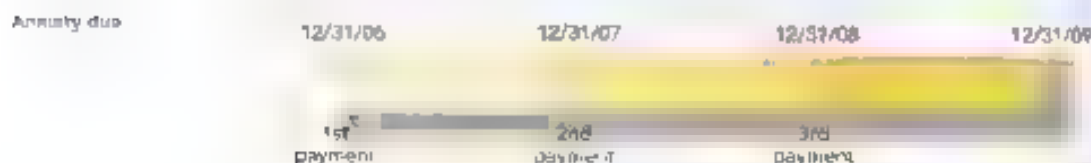


to be made quarterly for three years at a rate of 4% per year, compounded quarterly, would be an annuity due.

Ordinary annuity

40,000 per year for 3 years at 4% per year, compounded quarterly, would be an annuity due.

of a building that begins on December 31, 2006, and ends on December 31, 2009, may require the first year's lease payment in advance on December 31, 2006. The third and last payment would take place on December 31, 2008, the beginning of the third year of the lease. The following time diagram illustrates this situation:



Future Value of an Annuity

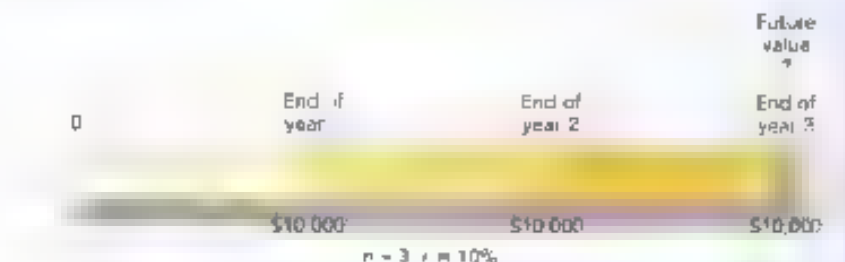
FUTURE VALUE OF AN ORDINARY ANNUITY

Let's first consider the future value of an ordinary annuity in Discussion 6-6.

ILLUSTRATION 6-6 Future Value of an Ordinary Annuity

Sally Rogers wants to accumulate a sum of money to pay for graduate school. Rather than investing a single amount today that will grow to a future value, she decides to invest \$10,000 a year over the next three years in a savings account paying 10% interest compounded annually. She decides to make the first payment at the bank on the first day of the year.

The following time diagram illustrates this ordinary annuity situation. Time 0 is the start of the first period.



Using the FV of \$1 factors from Table 1, we can calculate the future value of this annuity by calculating the future value of each of the individual payments as follows:

| | Payment | | FV of \$1
i = 10% | | Future Value
(at the end of year 3) | n |
|----------------|----------|---|----------------------|---|--|---|
| First payment | \$10,000 | × | 1.21 | = | \$12,100 | 2 |
| Second payment | 10,000 | × | 1.10 | = | 11,000 | 1 |
| Third payment | 10,000 | × | 1.00 | = | 10,000 | 0 |
| Total | | | 3.31 | | \$33,100 | |

From the time diagram, we can see that the first payment has two compounding periods to earn interest. The factor used, 1.21, is the FV of \$1 invested for two periods at 10%. The second payment has one compounding period and the last payment does not earn any interest because it is invested on the last day of the three-year annuity period. Therefore, the total future value is \$33,100.

Illustration 6-6 shows the future value of an ordinary annuity. The future value of an annuity due is calculated differently because the payments are made at the beginning of each period.

This illustration shows that it's possible to calculate the future value of the annuity by separately calculating the FV of each payment and then adding those amounts together. Fortunately, that's not necessary; Table 3, Future Value of an Ordinary Annuity, located at the end of this textbook simplifies the computation by summing the individual FV of \$1 factors for various factors of n and i . Graphic 6-3 contains an excerpt from Table 3.

• LO6

| Periods (n) | Interest Rates (i) | | | | | |
|-------------|--------------------|---------|--------|--------|---------|---------|
| | 7% | 8% | 9% | 10% | 11% | 12% |
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 2 | 2.0700 | 2.0800 | 2.0900 | 2.10 | 2.1100 | 2.1200 |
| 3 | 3.2149 | 3.2464 | 3.2783 | 3.3100 | 3.3421 | 3.3744 |
| 4 | 4.4399 | 4.5060 | 4.573 | 4.64 | 4.7097 | 4.7803 |
| 5 | 5.7507 | 5.8566 | 5.9637 | 6.0713 | 6.2278 | 6.3875 |
| 6 | 7.1571 | 7.3554 | 7.5543 | 7.7537 | 7.9539 | 8.1552 |
| 7 | 8.6547 | 8.9228 | 9.2006 | 9.4786 | 9.7573 | 10.0369 |
| 8 | 10.2598 | 10.6160 | 10.995 | 11.433 | 11.8594 | 12.2997 |

GRAPHIC 6-3

Future Value of an Ordinary Annuity of \$1 (excerpt from Table 3)

The future value of \$1 at the end of each of three periods invested at 10% is shown in Exhibit 6-4. We can simply multiply this factor by \$1,000 to derive the FV of our ordinary annuity (FVA).

$$\text{FVA} = \$1,000 \times \text{FV of } \$1 \text{ factor} = \$3,310$$

FUTURE VALUE OF AN ANNUITY DUE

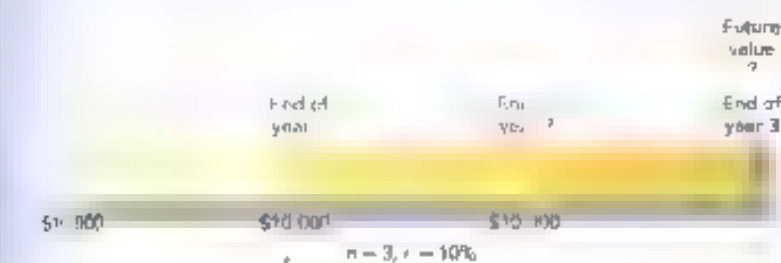
Consider the previous situation to be an annuity due as illustrated in Illustration 6-7.

For example, if you want to accumulate a sum of money to pay for graduate school. Rather than making a single amount today that will grow to a future value, you decide to invest \$10,000 over the next three years in a savings account paying 10% interest compounded annually. You decide to make the first payment to the bank immediately. How much will Sally have available in her account at the end of three years?

ILLUSTRATION 6-7

Future value of an Annuity Due

The following time diagram depicts the situation. Again, note that 0 is the start of the first period.



The future value can be found by separately calculating the FV of each of the three payments and then summing those individual future values:

to the future value of an annuity due that will earn 10% per year.

| | Payment | | FV of \$1
$i = 10\%$ | | Future Value
(at the end of year 3) | n |
|----------------|----------|----------|-------------------------|-----|--|-----|
| First payment | \$10,000 | | 1.331 | | \$13,310 | 1 |
| Second payment | 10,000 | \times | 1.210 | $=$ | 12,100 | 2 |
| Third payment | 10,000 | \times | 1.100 | $=$ | 11,000 | 3 |
| Total | | | 3.641 | | \$36,410 | |

And again, this same future value can be found by using the future value of an annuity due (FVAD) factor from Table 5, Future Value of an Annuity Due, located at the end of this textbook, as follows:

$$\text{FVAD} = \$10,000 (\text{annuity amount}) \times 3.641 = \$36,410$$

*Future value of an annuity due of \$1; $n = 3$; $i = 10\%$

Of course, if unequal amounts are invested each year, we can solve the problem by using the annuity tables. The future value of each payment would have to be calculated separately.

Present Value of an Annuity

PRESENT VALUE OF AN ORDINARY ANNUITY

• 107

You will learn in later chapters that liabilities and receivables, with the exception of certain trade receivables and payables, are reported in financial statements at their present value. Most of these financial instruments require equal periodic interest payments or scheduled payments. As a result, the most common accounting applications of the time value of money involve determining present value of annuities. As in the future value applications we discussed above, an annuity can be either an ordinary annuity or an annuity due. Let's look at an ordinary annuity first.

On page 278, we determined that Sally Rogers could accumulate \$33,100 for graduate school by investing \$10,000 at the end of each of three years at 10%. The \$33,100 is the future value of the ordinary annuity described. Another alternative is to invest one single amount at the beginning of the three-year period (See Illustration 6-8). This single amount will equal the present value at the beginning of the three-year period of the \$3,100 future value. It will also equal the present value of the \$10,000 three-year annuity.

FINANCIAL REPORTING CASE

Q1 p. 267

ILLUSTRATION 6-8 Present Value of an Ordinary Annuity

Sally Rogers wants to accumulate a sum of money to pay for graduate school. She wants to invest a single amount today in a bank that is earning 10% interest compounded annually. Alternatively, she could invest \$10,000 at the end of each of the next three years.

The present value can be found by separately calculating the PV of each of the three payments and then summing those individual present values.

| | Payment | | PV of \$1
$i = 10\%$ | | Present Value
(at the beginning of year 1) | n |
|----------------|----------|----------|-------------------------|--|---|-----|
| First payment | \$10,000 | | .90909 | | \$9,091 | 1 |
| Second payment | 10,000 | \times | .82645 | | 8,264 | 2 |
| Third payment | 10,000 | \times | .75131 | | 7,513 | 3 |
| Total | | | 2.48685 | | \$24,868 | |

A more efficient method of calculating present value is to use Table 4, Present Value of an Ordinary Annuity, located at the end of this textbook. Graphic 6-4 contains an excerpt from Table 4.

Using Table 4, we calculate the PV of the ordinary annuity (PVA) as follows:

$$\text{PVA} = \$10,000 (\text{annuity amount}) \times 2.48685 = \$24,868$$

*Present value of an ordinary annuity of \$1; $n = 3$; $i = 10\%$

| Periods (n) | Interest Rates | | | | | |
|-------------|----------------|---------|---------|---------|---------|---------|
| | 7% | 8% | 9% | 10% | 11% | 12% |
| 1 | 0.93458 | 0.92593 | 0.91743 | 0.90909 | 0.90090 | 0.89286 |
| 2 | 0.87344 | 0.85734 | 0.84168 | 0.82645 | 0.81162 | 0.79719 |
| 3 | 0.81629 | 0.79719 | 0.77909 | 0.76210 | 0.74622 | 0.73069 |
| 4 | 0.76210 | 0.74622 | 0.73069 | 0.71551 | 0.69960 | 0.68401 |
| 5 | 0.71068 | 0.69509 | 0.67964 | 0.66427 | 0.64899 | 0.63383 |
| 6 | 0.66126 | 0.64593 | 0.63069 | 0.61558 | 0.59954 | 0.58369 |
| 7 | 0.61391 | 0.59879 | 0.58372 | 0.56877 | 0.55392 | 0.53918 |
| 8 | 0.56877 | 0.55392 | 0.53918 | 0.52458 | 0.50992 | 0.49539 |

GRAPHIC 5-4

Present Value of an
Ordinary Annuity of \$1
(excerpt from Table 4)

ADDITIONAL CONSIDERATION

As previously mentioned, financial calculators can be used to solve future and present value problems. For example, a Texas Instruments model BA-35 has the following particular keys:

N i PV FV PMT CPT

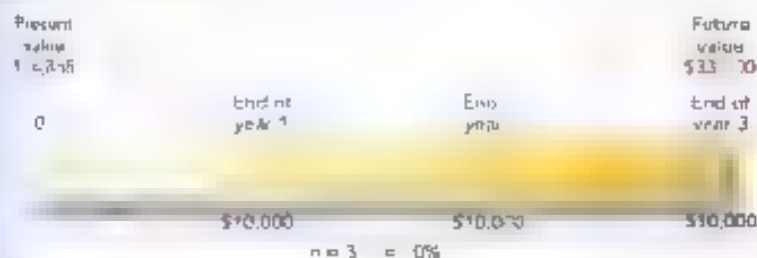
These keys are defined as follows:

- N Number of periods
- i Interest rate
- PV Present value
- FV Future value
- PMT Annuity payments
- CPT Compute button

To illustrate its use, assume that you need to determine the present value of a 10-period ordinary annuity of \$200 using a 12% interest rate. You would enter 10 = N, 12 = i, 0 = FV, 200 = PMT, then press CPT and PV to obtain the answer of \$1,229.

Many professionals choose to use spreadsheet software such as Excel to solve time value of money problems. These spreadsheets can be used in a variety of ways. A template can be created using the formulas shown in Graphic 5-5 on page 291. An alternative is to use the software's built-in financial functions. For example, Excel has a function called PV that calculates the present value of an ordinary annuity. To use the function, you would select the pull-down menu for "insert," click "function," and choose the category called "financial." Scroll down to PV and double-click. You will then be asked to input the necessary variables—interest rate, the number of periods, and the payment amount.

The relationship between the present value and the future value of the annuity can be depicted graphically as follows:



Relationship between
present value and
future value—ordinary
annuity

This can be interpreted in several ways:

1. \$10,000 invested at 7% at the end of each of the next three years will accumulate to \$33,100 at the end of the third year.
2. \$24,868 invested at 10% now will grow to \$33,100 after three years.
3. Someone whose time value of money is 10% would be willing to pay \$24,868 now to receive \$10,000 at the end of each of the next three years.
4. If your time value of money is 10%, you should be indifferent with respect to paying/receiving (a) \$24,868 now, (b) \$33,100 three years from now, or (c) \$10,000 at the end of each of the next three years.

ADDITIONAL CONSIDERATION

We also can verify that these are the present value and future value of the same annuity by calculating the present value of a single cash amount of \$33,100 three years hence:

$$PV = \$33,100 \text{ if it (value) } \times .7531^* = \$24,868$$

*Present value of \$1 10%

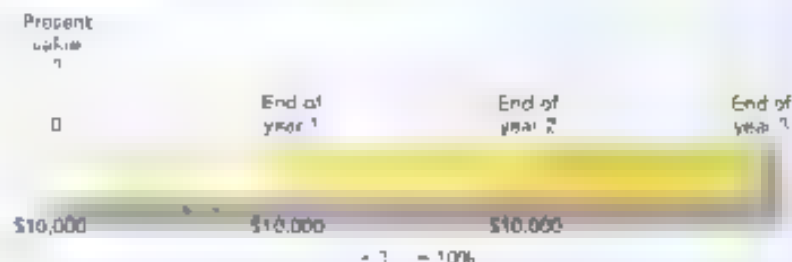
PRESENT VALUE OF AN ANNUITY DUE

ILLUSTRATION 6-9 Present Value of an Annuity Due

In the previous illustration, suppose that three equal payments of \$10,000 are to be made at the beginning of each of the three-year period. Recall from the illustration on page 460 that the future value of this annuity is \$336,400. What is the present value?

The following time diagram depicts the situation:

Present value of an
annuity due



Once again, using individual PV factors of \$1 from Table 2, the PV of the annuity due can be calculated as follows:

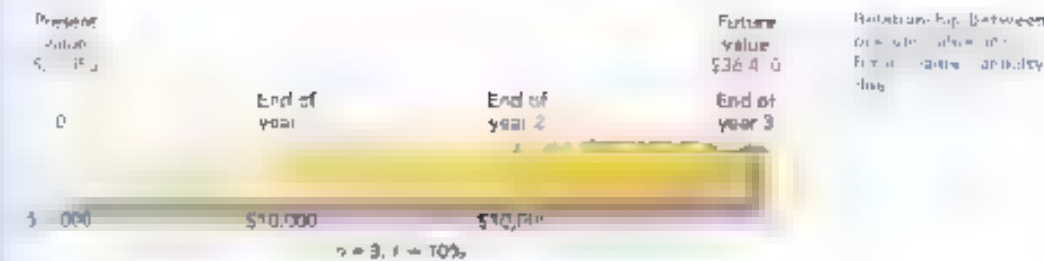
| | Payment | | PV of \$1
$i = 10\%$ | Present Value
(at the beginning of year 1) n | |
|----------------|----------|----------|-------------------------|---|---|
| First payment | \$10,000 | \times | 1.00000 | \$10,000 | 0 |
| Second payment | 10,000 | \times | .90909 | 9,091 | |
| Third payment | 10,000 | \times | .82645 | 8,264 | 2 |
| Total | | | 2.72645 | \$27,264 | |

In the present value of an annuity due, no interest needs to be removed from the first cash payment.

The first payment does not contain any interest since it is made on the first day of the three-year annuity period. Therefore, the factor used is 1.0. The second payment has one compounding period and the factor used of .90909 is the PV factor of \$1 for one period at 10%, and we need to remove two compounding periods of interest from the third payment. The factor used of .82645 is the PV factor of \$1 for two periods at 10%.

The relationship between the present value and the future value of the annuity can be depicted graphically as follows:





Using Table 6, Present Value of an Annuity Due, located at the end of this book, we can efficiently calculate the PV of the annuity due (PVAD):

$$\text{PVAD} = \$10,000 \text{ annuity amount} \times 2.73554 \text{ at } i = 10\% = \$27,355.40$$

To better understand the relationship between Tables 4 and 6, notice that the PVAD factor for three periods, 10% from Table 6 is 2.73554. This is simply the PVA factor for two periods, 10%, of 1.73554, plus 1.0. The addition of 1.0 reflects the fact that the first payment does not require the removal of any interest.

PRESENT VALUE OF A DEFERRED ANNUITY

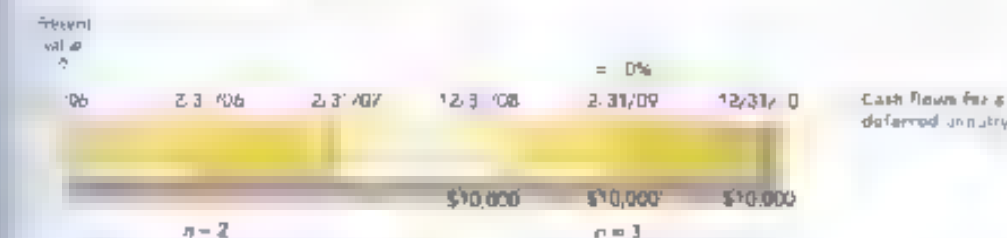
Valuing valuations often involve the present value of annuities in which the first cash flow is expected to occur more than one time period after the date of the agreement. As the payment of the annuity is deferred beyond a single period, this type of annuity is referred to as a deferred annuity.²

A deferred annuity is an annuity in which the first payment is made at a time period greater than one period after the date of the agreement.

At January 1, 2006, you are considering acquiring an investment that will provide three equal payments of \$10,000 each to be received at the end of three consecutive years. However, the first payment is not expected until December 31, 2008. The discount rate of money is 10%. How much would you be willing to pay for this investment?

ILLUSTRATION 6-10 Deferred Annuity

To solve this problem, we first draw a timeline depicting the situation:



The present value of the annuity can be calculated by summing the present values of the individual cash flows, each discounted to today's PV:

| | Payment | PV of \$1 $i = 10\%$ | Present Value | n |
|----------------|----------|----------------------|--------------------|---|
| First payment | \$10,000 | .75131 | \$7,513.10 | 3 |
| Second payment | 10,000 | .68301 | 6,830.10 | 4 |
| Third payment | 10,000 | .62092 | 6,209.20 | 5 |
| | | | <u>\$20,552.40</u> | |

² A deferred annuity is an annuity in which the first payment is made at a time period greater than one period after the date of the agreement.

A more efficient way of calculating the present value of a deferred annuity involves a two-step process:

1. Calculate the PV of the annuity as of the beginning of the annuity period.
2. Discount the single amount calculated in (1) to its present value *as of today*.

In this case, we compute the present value of the annuity as of December 31, 2007, by multiplying the annuity amount by the three-period ordinary annuity factor:

$$PVA = \$10,000 (\text{annuity amount}) \times 2.48685^* = \$24,869$$

*Present value of an ordinary annuity of \$1: $n = 3$, $i = 10\%$.

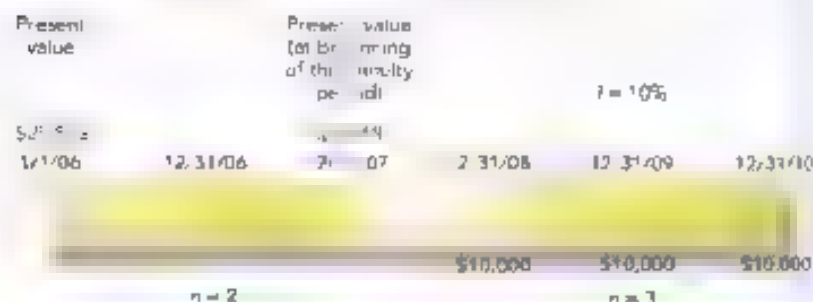
This is the present value as of December 31, 2007. This single amount is then reduced to present value as of January 1, 2006, by making the following calculation:

$$PV = \$24,869 (\text{future amount}) \times .87645^* = \$21,557$$

*Present value of \$1: $n = 3$, $i = 10\%$.

The following time diagram illustrates the two-step process.

FIGURE 6-11
Present value of a deferred annuity



If you recall the concepts you learned in this chapter, you might think of other ways the present value of a deferred annuity can be determined. Among them:

1. Calculate the PV of an annuity due, rather than an ordinary annuity, and then discount that amount three periods rather than two.

$$PVAD = \$10,000 (\text{annuity due amount}) \times 2.71534^* = \$27,153$$

*Present value of an annuity due of \$1: $n = 3$, $i = 10\%$.

This is the present value as of December 31, 2008. This single amount is then reduced to present value as of January 1, 2006, by making the following calculation:

$$PV = \$27,153 \times .75131^* = \$20,399$$

*Present value of \$1: $n = 3$, $i = 10\%$.

2. From Table 4, subtract the two-period PVA factor (1.73554) from the five-period PVA factor (3.79079) and multiply the difference (2.05525) by \$10,000 to get \$20,552.

Solving for Unknown Values in Present Value Situations



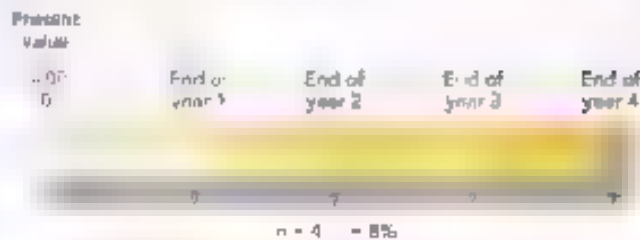
LO 6

In present value problems involving annuities, there are four variables: (1) present value of an ordinary annuity (PVA) or present value of an annuity due (PVAD); (2) the amount of each annuity payment; (3) the number of periods, n ; and (4) the interest rate, i . If you know any three of these, the fourth can be determined.

ILLUSTRATION 6-11 Determining the Annuity Amount When Other Variables Are Known

Assume that you borrow \$700 from a friend and intend to repay the amount in four equal annual payments beginning one year from today. Your friend wishes to be reimbursed for the time value of money at an 8% annual rate. What is the required annual payment that must be made (the annuity amount), to repay the loan in four years?

The following time diagram illustrates the situation.



Determining the unknown annuity amount when the present value, n , and i are known.

The required payment is the annuity amount that will provide a present value of \$700 when discounting that amount at a discount rate of 8%:

$$\$700 (\text{present value}) = 3.31213^* \times \text{annuity amount}$$

The unknown variable is the annuity amount.

Rearranging algebraically, we find that the annuity amount is \$211.34.

$$\$700 (\text{present value}) \div 3.31213^* = \$211.34 \text{ annuity amount}$$

*Present value of an ordinary annuity of \$1, $n = 4$, $i = 8\%$

You would have to make four annual payments of \$211.34 to repay the loan. Total payments of \$845.36 ($4 \times \211.34) would include \$145.36 in interest ($\$845.36 - \700.00).

Assume that you borrow \$700 from a friend and agree to repay the amount in equal installments of \$100 per year over a period of years. The payments will be made at the end of each year beginning one year from now. Your friend wishes to be reimbursed for the time value of the \$700 at a 7% annual rate. How many years would it take before you repay the loan?

ILLUSTRATION 4-12

Determining n When Other Variables Are Known

Illustration 4-12 is an ordinary annuity situation because the first payment takes place one year from now. The following time diagram illustrates the situation.



Determining the unknown number of periods when the present value and annuity are known.

The number of years is the value of n that will provide a present value of \$700 when discounting \$100 at a discount rate of 7%:

$$\$700 (\text{present value}) = \$100 (\text{annuity amount}) \times 7.0$$

*Present value of an ordinary annuity of \$1, $i = 7\%$

The unknown variable is the number of periods.

Rearranging algebraically, we find that the PVA table factor is 7.0.

$$\$700 (\text{present value}) \div \$100 (\text{annuity amount}) = 7.0$$

*Present value of an ordinary annuity of \$1, $i = 7\%$

When you consult the PVA table, Table 4, you search the 7% column ($i = 7\%$) for this factor and find it in row 10. So it would take approximately 10 years to repay the loan in the situation described.

ILLUSTRATION 6-13

Determining When Other Variables Are Known

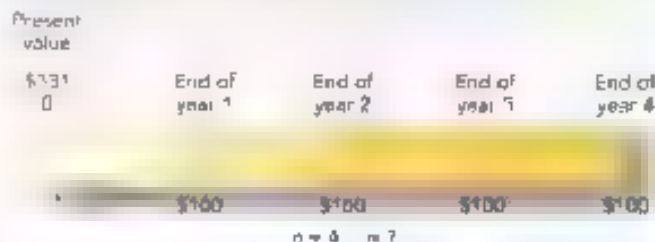
Suppose that a friend asked to borrow \$33 today (present value) and promised to repay you \$100 in annual payments at the end of the next four years. What is the annual interest rate implicit in this agreement?

FINANCIAL REPORTING CASE

Q2, p. 287

Determining the unknown variable—present value—ordinary annuity

Present value: we are dealing with an ordinary annuity situation as the payments are at the end of each period. The following time diagram illustrates the situation:



The interest rate is the discount rate that will provide a present value of \$33 when discounting the \$100 four-year ordinary annuity:

The unknown variable is the interest rate

$$\$33 \text{ (present value)} = \$100 \text{ (annuity amount)} \times ?$$

*Present value of an annuity of \$1, $n = 4$

Rearranging algebraically, we find that the PVA table factor is 3.31:

$$\$33 \text{ (present value)} \div \$100 \text{ (annuity amount)} = 3.31^*$$

*Present value of an annuity of \$1, $n = 4$

When you consult the PVA table (Table 4), you search row four ($n = 4$) for this value and find it in the 8% column. So the effective interest rate is 8%.

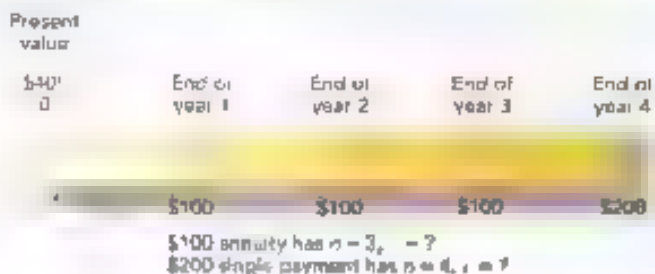
ILLUSTRATION 6-14

Determining When Other Variables Are Known: Unequal Cash Flows

Suppose that you borrowed \$400 from a friend and promised to repay the loan by making three annual payments of \$100 at the end of each of the next three years, plus a final payment of \$200 at the end of year four. What is the interest rate implicit in this agreement?

The following time diagram illustrates the situation.

Determining the unknown variable—present value—unequal cash flows



The interest rate is the discount rate that will provide a present value of \$400 when discounting the \$100 three-year ordinary annuity plus the \$200 to be received in four years.

The unknown variable is the interest rate

$$\$400 \text{ (present value)} = \$100 \text{ (annuity amount)} \times ? + \$200 \text{ (single payment)} \times ?$$

*Present value of an annuity of \$1, $n = 3$, $i = ?$
Present value of \$1, $n = 4$, $i = ?$

This equation involves two unknowns and is not as easily solved as the two previous equations. One way to solve the problem is to trial-and-error the answer. For example, if we assumed i to be 9%, the usual PV of the payments would be calculated as follows:

$$PV = \$100(2.531294) + \$300(1.708437) = \$811.5$$

*Present value of an annuity of \$1, $n = 10$, $i = 9\%$ from Table 5
Present value of \$1, $n = 10$, $i = 9\%$ from Table 4

Because the present value computed is less than the \$400 borrowed, using 9% removes too much interest. Re-calculating PV with $i = 8\%$ results in a PV of \$400. This indicates that the interest rate implicit in the agreement is between 8% and 9%.

CONCEPT REVIEW EXERCISE

Use the appropriate table, answer each of the following independent questions.

ANNUITIES

- What is the future value of an annuity of \$2,000 invested at the *end* of each of the next six periods at 8% interest?
- What is the future value of an annuity of \$2,000 invested at the *beginning* of each of the next six periods at 8% interest?
- What is the present value of an annuity of \$6,000 to be received at the *end* of each of the next eight periods assuming an interest rate of 10%?
What is the present value of an annuity of \$6,000 to be received at the *beginning* of each of the next eight periods assuming an interest rate of 10%?
- Jane bought a \$3,000 audio system and agreed to pay for the purchase in 10 equal annual installments of \$400 beginning one year from today. What is the interest rate implicit in this agreement?
- Jane bought a \$3,000 audio system and agreed to pay for the purchase in 10 equal annual installments beginning one year from today. The interest rate is 12%. What is the amount of the annual installment?
- Jane bought a \$3,000 audio system and agreed to pay for the purchase by making five equal annual installments beginning one year from today plus a lump-sum payment of \$1,000 at the end of 5 periods. The interest rate is 12%. What is the required annual installment?
- Jane bought an audio system and agreed to pay for the purchase by making four equal annual installments of \$400 beginning one year from today plus a lump-sum payment of \$1,000 at the end of five years. The interest rate is 12%. What was the cost of the audio system? (Hint: What is the present value of the cash payments?)
- Jane bought an audio system and agreed to pay for the purchase by making five equal annual installments of \$400 beginning four years from today. The interest rate is 12%. What was the cost of the audio system? (Hint: What is the present value of the cash payments?)

$$FVA = \$2,000 \times 7.33594 = \$14,672$$

Future value of an annuity of \$2,000, $n = 6$, $i = 8\%$ from Table 3

$$FVAD = \$2,000 \times 7.92287 = \$15,846$$

Future value of an annuity due of \$2,000, $n = 6$, $i = 8\%$ from Table 3

$$PVA = \$6,000 \times 5.33493 = \$32,010$$

Present value of ordinary annuity of \$6,000, $n = 8$, $i = 10\%$ from Table 4

$$4. \text{ FVAD} = \$6,000 \times 5.86432 = \$35,186$$

Future value of an annuity due of \$6,000, $n = 8$, $i = 10\%$ from Table 4

$$PVA = \frac{\$400}{0.12} \times 7.399 = \$3,115$$

Present value of an ordinary annuity of \$400, $n = 10$, $i = 12\%$ from Table 4. Equivalent to \$400.

$$\text{Cash annuity payment} = \frac{\$3,115}{5.33493} = \$584$$

Present value of an annuity of \$584, $n = 10$, $i = 12\%$ from Table 4

Solution

$$* \text{ Each annuity payment} = \frac{\$3,000}{\text{PV of \$ 1,000 (} n = 11, i = 10\% \text{)}} = \frac{\$3,000}{5.75902^*}$$

$$\text{Each annuity payment} = \$3,000 \div (\$1,000 \times 3.85534) = \$759.02^*$$

$$\text{Each annuity payment} = \frac{\$2,664}{5.75902^*} = \$462.74$$

*Factor value = 1.000000 at 10% for 11 periods from Table A
Present value of \$1 = 0.350510 at 10% for 11 periods from Table A

$$B. \text{ PV} = \$800 \times 3.03735^* + \$1,000 \times .67683^* = \$2,997.55$$

*Factor value of an ordinary annuity = 3.03735 at 4% for 10 periods from Table A
*Factor value of \$1 = .67683 at 4% for 10 periods from Table A

$$C. \text{ PV} = \$1,000 \times .67683^* = \$676.83$$

*Factor value of \$1 = .67683 at 4% for 10 periods from Table A

This is the present value three years from today (the beginning of the five-year interest annuity). This single amount is discounted to present value (at 4% today) by making the following calculation:

$$\text{PV} = \$676.83 \times .77667^* = \$525.71$$

*Factor value of \$1 = .77667 at 4% for 3 periods from Table A

Preview of Accounting Applications of Present Value Techniques—Annuities

- **LO9** The time value of money has many applications in accounting. Most of these applications involve the concept of present value. Because financial instruments typically specify equal periodic payments, these applications quite often involve annuity situations. For example, let's consider one accounting situation using both an ordinary annuity and the present value of a single amount (long-term bonds), one using an annuity due (long-term leases), and one using a deferred annuity (pension obligations).

FINANCIAL REPORTING CASE

03, p. 267

VALUATION OF LONG-TERM BONDS

You will learn in Chapter 14 that a long-term bond usually requires the issuing (borrowing) company to repay a specified amount at maturity and make periodic stated interest payments over the life of the bond. The stated interest payments are equal to the total amount stated on the bond (the face value of the bond). At the date the bonds are issued, with the market place will determine the price of the bonds based on the market rate of interest for investments with similar characteristics. The market rate at date of issuance may not equal the bonds' stated rate in which case the price of the bonds (the amount the issuing company actually is borrowing) will not equal the bonds' face value. Bonds issued at more than face value are said to be issued at a premium, while bonds issued at less than face value are said to be issued at a discount. Consider the example in Illustration 6-15.

ILLUSTRATION 6-15

Valuing a Long-Term Bond Liability

On June 30, 2006, Fumatsu Electric issued 10% stated rate bonds with a face amount of \$20 million. The bonds mature on June 30, 2026 (20 years). The market rate of interest for similar issues was 7% (interest is paid semiannually, 3.5% on June 30 and December 31 beginning December 31, 2006). The interest payments are \$10 million (5% of \$20 million). What was the price of the bond issue?

To determine the price of the bonds, we calculate the present value of the 40-period annuity (40 semiannual interest payments of \$10 million) and the lump-sum payment of \$20 million paid at maturity using the semiannual market rate of interest of 3.5% (in equation form).

pay employees the retirement benefits they have earned. The amounts contributed are determined using estimates of retirement benefits. The actual amounts paid to employees during retirement depend on many factors including future compensation levels and length of life. Consider Illustration 6-17.

ILLUSTRATION 6-17 Valuing a Pension Obligation

In January 2006, Stridewell, who expected to work for 25 years, began pension payments to be paid at the end of 62 years. The company expected that its annual pension benefit (estimated cash to pension) and that will accrue it. Assuming the Stridewell anticipates how much would the company have to

Stridewell company hired Sammy Jones. Sammy is 35 years old on December 31, 2006. Annual retirement benefit during his retirement period expected to be \$2,000. During 2006, Sammy earned an annual salary of \$20,000. The company plans to contribute an amount sufficient to pay Sammy's benefit during all on all funds invested in the pension plan. Assume that the company will contribute at the end of 2006 to pay for pension benefits earned in 2006.

To determine the required contribution, we calculate the present value on December 31, 2006, of the deferred annuity of \$2,000 that begins on December 31, 2031, and is expected to end on December 31, 2050.

The following time diagram depicts this situation:



We can calculate the present value of the annuity using a two-step process. The first step computes the present value of the annuity as of December 31, 2030, by multiplying the annuity amount by the 20-period ordinary annuity factor:

$$PVA = \$2,000 (\text{annuity amount}) \times 11.46992^* = \$22,940$$

*Present value of an annuity of \$1, $n = 20$, $i = 6\%$

This is the present value as of December 31, 2030. This single amount is then reduced to present value as of December 31, 2006, by a second calculation:

$$PV = \$22,940 (\text{future amount}) \times .24698^* = \$5,666$$

*Present value of \$1, $n = 24$, $i = 6\%$

Stridewell would have to contribute \$5,666 at the end of 2006 to fund the estimated pension benefits earned by its employee in 2006. Viewed in reverse, \$5,666 invested now at 6% will accumulate a fund balance of \$22,940 at December 31, 2030. If the fund balance remains invested at 6%, \$2,000 can be withdrawn each year for 20 years before the fund is depleted.

Among the other situations you'll encounter using present value techniques are valuation notes (Chapters 10 and 14) and postretirement benefits (Chapter 17).

Summary of Time Value + Money Concepts

Graphic 6-3 summarizes the time value of money concepts discussed in this chapter.



| Concept | Summary | Formula | Table |
|--|---|------------|-------|
| Future value of a dollar | The amount of money that a dollar will grow to at a given interest rate | $FV = \$1$ | 1 |
| Present value of a dollar | The amount of money today that requires an investment at a given interest rate to grow to one dollar in the future | PV | 2 |
| Present value of an annuity due | The value of a series of equal cash flows, with the first payment taking place at the start of the annuity period | $PVAD$ | 3 |
| Present value of an ordinary annuity | The present value of a series of equal cash flows with the first payment taking place at the end of the annuity period | PVA | 4 |
| Future value of an annuity due (FVAD) | The future value of a series of equal cash flows with the first payment taking place at the beginning of the annuity period | $FVAD$ | 5 |
| Future value of an ordinary annuity (FVAD) | The future value of a series of equal cash flows with the first payment taking place at the end of the annuity period | $FVAD$ | 6 |

GRAPHIC 8-5

Summary of Time Value of Money Concepts

FINANCIAL REPORTING CASE SOLUTION

1. Why were the Castellanos to receive \$43 million rather than the \$141 million lottery prize? (page 280) The Castellanos chose to receive their lottery winnings in one lump payment immediately rather than 26 equal annual installments beginning immediately. The state calculates the present value of the 26 equal payments, withholds the necessary federal income tax, and pays the Castellanos the remainder.

What interest rate did the State of California use to calculate the \$43 million lump-sum payment? (p. 286) The equal payment is determined by dividing \$141 million by 26 periods

| | |
|------------------------------|-------------|
| \$ 41 million \div 26 = | \$5,423,077 |
| Less: 31% federal income tax | (1,681,134) |
| Net-of-tax payments | \$3,741,923 |

Since the first payment is made immediately, this is an annuity due situation. We must find the interest rate that provides a present value of \$43 million. There is no 26-period row in Table 6. We can subtract the first payment from the \$43 million since it is paid immediately and solve using the 25-period ordinary annuity table (that is, the 25 remaining annual payments beginning in one year).



$$\begin{array}{rcl} \text{FVA Factor} & \$40,000 \times 1.11227 & = \$44,491.4^* \\ & \$40,000 & \end{array}$$

*Present value of an ordinary annuity of \$1, $n = 25$, $i = 7\%$ from Table B, \approx approximately 6%

So, the interest rate used by the state was approximately 6%.

- What are some of the accounting applications that incorporate the time value of money into valuation? (p. 298)
 - Initial valuation of long-term assets
 - Initial valuation of long-term liabilities that include bonds, notes, leases, pension obligations, and postretirement benefits other than pensions. We study these in detail in later chapters.

THE BOTTOM LINE

A dollar today is worth more than a dollar to be received in the future. The difference between the present value of cash flows and their future value represents the time value of money. Interest is the rent paid for the use of money over time.

- The future value of a single amount is the amount of money that a dollar will grow to at some point in the future. It is computed by *multiplying* the single amount by $1 + i^n$, where i is the interest rate and n the number of compounding periods. The Future Value of \$1 table allows for the calculation of future value for any single amount by providing the factors for various combinations of i and n .
- The present value of a single amount is the amount of money today that is equivalent to a given amount to be received or paid in the future. It is computed by *dividing* the future amount by $1 + i^n$. The Present Value of \$1 table simplifies the calculation of the present value of any future amount.
- There are four variables in the process of adjusting single cash flow amounts for the time value of money: present value (PV), future value (FV), i and n . If you know any three of these, the fourth can be computed easily.
- An annuity is a series of equal-sized cash flows occurring over equal intervals of time. An ordinary annuity exists when the cash flows occur at the end of each period. An annuity due exists when the cash flows occur at the beginning of each period.
- The future value of an ordinary annuity (FVA) is the future value of a series of equal-sized cash flows with the first payment taking place at the end of the first compounding period. The last payment will not earn any interest since it is made at the end of the annuity period. The future value of an annuity due (FVAD) is the future value of a series of equal-sized cash flows with the first payment taking place at the beginning of the annuity period (the beginning of the first compounding period).
- The present value of an ordinary annuity (PVA) is the present value of a series of equal-sized cash flows with the first payment taking place at the end of the first compounding period. The present value of an annuity due (PVAD) is the present value of a series of equal-sized cash flows with the first payment taking place at the beginning of the annuity period. The present value of a deferred annuity is the present value of a series of equal-sized cash flows with the first payment taking place more than one time period after the date of the agreement.
- In present value problems involving annuities, there are four variables: PVA or PVAD, the annuity amount, the number of compounding periods (n) and the interest rate (i). If you know any three of these, you can determine the fourth.
- Most accounting applications of the time value of money involve the present values of annuities. The initial valuation of long-term bonds is determined by calculating the present value of the periodically issued interest payments and the present value of the lump-sum payment made at maturity. Certain long-term leases require the lessee to compute the present value of future lease payments to value the leased asset and corresponding lease obligation. Also, pension plans require the payment of deferred annuities to retirees.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 6-1 Define interest.
- Q 6-2 Explain compound interest.
- Q 6-3 What would cause the annual interest rate to be different from the annual effective rate or yield?
- Q 6-4 Identify the three forms of mathematical equality in calculating the future value of a single amount.
- Q 6-5 Define the present value of a single amount.
- Q 6-6 Explain the difference between nominal and real interest rates and liabilities.
- Q 6-7 What is an annuity?
- Q 6-8 Explain the difference between an ordinary annuity and an annuity due.
- Q 6-9 Explain the relationship between Table 3, Present Value of \$1, and Table 4, Present Value of an Ordinary Annuity.
- Q 6-10 Prepare a time diagram for the present value of a four-year ordinary annuity of \$200. Assume an interest rate of 12% per year.
- Q 6-11 Prepare a time diagram for the present value of a four-year annuity due of \$200. Assume an interest rate of 12% per year.
- Q 6-12 What is a deferred annuity?
- Q 6-13 Assume that you borrowed \$5000 from a friend and promised to repay the loan in five equal annual installments beginning next year (next today). Your friend wants to be reimbursed for the time value of money at an 8% annual rate. Explain how you would compute the required annual payment.
- Q 6-14 Compute the required annual payment in Question 6-13.
- Q 6-15 Explain how the time value of money concept is incorporated into the valuation of long-term leases.

BRIEF EXERCISES

BE 1
Simple versus
compound interest
10 min

Fran Smith has two investment opportunities. The interest rate for both investments is 8%. Interest on the first investment will compound annually while interest on the second will compound quarterly. Which investment opportunity should Fran choose? Why?

BE 2
Future value: single
amount
10 min
10 min
Future value: solving
for unknown single
amount
10 min

Bill O'Brien would like to take his wife, Mary, on a trip three years from now to Europe to celebrate their 40th anniversary. He has just received a \$20,000 inheritance from an uncle and intends to invest it for the trip. He calculates the trip will cost \$25,000 and he believes he can earn 5% interest, compounded annually, on his investment. Will he be able to pay for the trip with the accumulated investment amount?

Refer to the situation described in BE 2. Assume that the trip will cost \$26,000. What annual rate, compounded annually, must Bill earn to accumulate enough to pay for the trip?

BE 3
Present value: single
amount
10 min
10 min

John has an investment opportunity that promises to pay him \$16,000 in four years. He could earn a 6% annual return investing his money elsewhere. What is the maximum amount he would be willing to invest in this opportunity?

BE 4
Future value: solving
for unknown single
amount
10 min
10 min

Refer to the situation described in BE 3. Suppose the opportunity requires John to invest \$12,000 today. What is the interest rate John would earn on this investment?

BE 5
Future value: ordinary
annuity
10 min
10 min

Leslie McCormack is in the spring quarter of her freshman year of college. She and her friends already are planning a trip to Europe after graduation in a little over three years. Mary would like to contribute to a savings account over the next three years in order to accumulate enough money to take the trip. Assuming an interest rate of 4%, compounded quarterly, how much will she accumulate in three years by depositing \$500 at the end of each of the next three quarters, beginning three months from now.

BE 6-7

Future value; annuity due

• LO5

Refer to the situation described in BE 6-6. How much will Leslie accumulate in three years by depositing \$500 at the beginning of each of the next 12 quarters?

BE 6-8

Present value; ordinary annuity

• LO7

Canlies Mining Company borrowed money from a local bank. The note the company signed requires five annual (semi)interest payments of \$10,000 beginning one year from today. The interest rate on the note is 7%. What amount did Canlies borrow?

BE 6-9

Present value; annuity due

• LO

Refer to the situation described in BE 6-8. What amount did Canlies borrow assuming that the first \$10,000 payment was due immediately?

BE 6-10

Future value; annuity

• LO7

Refer to the situation described in BE 6-8. What amount did Canlies borrow assuming that the first of the five annual \$10,000 payments was not due for three years?

BE 6-11

Solve for unknown annuity

• LO

Kingsley Toyne borrowed \$100,000 from a local bank. The loan requires Kingsley to pay 10 equal annual installments beginning one year from today. Assuming an interest rate of 8%, what is the amount of each annual installment payment?

BE 6-12

Price of a bond

• LO9

On December 31, 2006, Interlink Communications issued 670 stated rate bonds with a face amount of \$100 million. The bonds mature on December 31, 2016. Interest is payable annually on each December 31, beginning in 2007. Determine the price of the bonds on December 31, 2006, assuming that the market rate of interest for similar bonds was 7%.

BE 6-13

Lease payment

• LO9

On September 30, 2006, Ferguson, Inc. rented a warehouse. Terms of the lease require Ferguson to make 10 annual lease payments of \$55,000 with the first payment due immediately. Accounting standards require the company to record a lease liability when recording this type of lease. Assuming an 8% interest rate, what amount should Ferguson record for the lease liability on September 30, 2006, before the first payment is made?

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/spiceland4e

E 6-1

Future value; single amount

• LO4

Determine the future value of the following single amounts.

| | Invested Amount | Interest Rate | No. of Periods |
|----|-----------------|---------------|----------------|
| 1. | \$15,000 | 6% | 12 |
| 2. | 20,000 | 8 | 10 |
| 3. | 30,000 | 12 | 20 |
| 4. | 50,000 | 4 | 12 |

E 6-2

Present value; single amount

• LO6

Determine the present value of the following single amounts.

| | Future Amount | Interest Rate | No. of Periods |
|----|---------------|---------------|----------------|
| 1. | \$100,000 | 7% | 10 |
| 2. | 15,000 | 8 | 12 |
| 3. | 75,000 | 2 | 20 |
| 4. | 40,000 | 10 | 8 |

E 6-3

Present value; multiple, unequal amounts

• LO9

Determine the combined present value as of October 1, 2006, of the following four payments to be received at the end of each of the designated years, assuming an annual interest rate of 11%.

| Payment | Year Received |
|---------|---------------|
| \$5,000 | 2007 |
| 6,000 | 2008 |
| 8,000 | 2010 |
| 9,000 | 2012 |

6-4 Future value, single amounts

6-12

6-15

6-5 Future value, annuities

6-16

6-6 Present value, annuities

6-17

6-7 Solving for unknowns, single amounts

6-18

6-8 Solving for unknowns, annuities

6-19

6-9 Solving for unknowns, present value, annuities

6-20

6-10 Solving for unknowns, present value, annuities

6-21

Compute the future value of \$10,000 under each of the following sets of assumptions:

| | Annual Rate | Period Invested | Interest Compounded |
|----|-------------|-----------------|---------------------|
| 1. | 10% | 10 years | Semiannually |
| 2. | 12 | 5 years | Quarterly |
| 3. | 24 | 30 months | Monthly |

Wendell Video plans to make four annual deposits of \$2,000 each in a special building fund. The fund's assets will be invested in a mortgage investment expected to pay interest at 12% on the fund's balance. Using the appropriate annuity table, determine how much will be accumulated in the fund on December 31, 2009, under each of the following situations:

- The first deposit is made on December 31, 2006, and interest is compounded annually.
- The first deposit is made on December 31, 2005, and interest is compounded annually.
- The first deposit is made on December 31, 2005, and interest is compounded quarterly.
- The first deposit is made on December 31, 2005, interest is compounded annually, and interest earned is withdrawn at the end of each year.

Using the appropriate present value table and assuming a 3% annual interest rate, determine the present value on December 31, 2006, of a five-period annual annuity of \$5,000 under each of the following conditions:

- The first payment is received on December 31, 2007, and interest is compounded annually.
- The first payment is received on December 31, 2006, and interest is compounded annually.
- The first payment is received on December 31, 2007, and interest is compounded quarterly.

For each of the following situations (involving single amounts), solve for the unknown: 1. Assume that interest is compounded annually; 2. interest rate; and 3. number of years.

| | Present Value | Future Value | r | n |
|----|---------------|--------------|-----|----|
| 1. | \$34,289 | \$43,000 | 10% | 5 |
| 2. | 15,154 | 45,000 | ? | 10 |
| 3. | 46,651 | 40,000 | 8 | ? |
| 4. | 46,651 | 100,000 | ? | 8 |
| 5. | 15,176 | ? | ? | 20 |

For each of the following situations (involving annuities), solve for the unknown: 1. Assume that interest is compounded annually; 2. interest rate; 3. number of years; and 4. annuity amount.

| | Present Value | Annuity Amount | r | n |
|----|---------------|----------------|----|---|
| 1. | ? | \$3,000 | 8% | 5 |
| 2. | \$242,980 | 75,000 | ? | 4 |
| 3. | 161,214 | 20,000 | 9 | ? |
| 4. | 500,000 | 80,576 | ? | 8 |
| 5. | 250,000 | ? | 10 | 4 |

John Baker wants to accumulate \$100,000 to be used for his daughter's college education. He would like to have the amount available on December 31, 2011. Assume that the funds will accumulate in a certificate of deposit paying 8% interest compounded annually.

Required:

Answer each of the following independent questions.

- If John were to deposit a single amount, how much would he have to invest on December 31, 2006?
- If John were to make five equal deposits on each December 31, beginning on December 31, 2007, what is the required deposit?
- If John were to make five equal deposits on each December 31, beginning on December 31, 2006, what is the required deposit?

Answer each of the following independent questions.

Alex Meir recently won a lottery and has the option of receiving one of the following three prizes: (1) \$64,000 cash immediately; (2) \$25,000 cash immediately and a six-period annuity of \$8,000 beginning one year from today; or (3) a six-period annuity of \$10,000 beginning one year from today. Assuming an interest rate of 6%, which option should Alex choose?

The Weiner Corporation wishes to accumulate a sum of money to repay certain debts due on December 31, 2015. Weiner will make annual deposits of \$100,000 into a special bank account at the end of each of 10 years beginning December 31, 2004. Assuming that the bank account pays 7% interest compounded annually, what will be the fund balance when the last payment is made on December 31, 2014?

E 6-11
Noninterest-bearing
note; single payment

• LO3

E 6-12
Solving for unknown
annuity payment

• LO8

E 6-13
Solving for unknown
interest rate

• LO8

E 6-14
Solving for unknown
annuity amount

• LO8

E 6-15
Price of a bond

• LO9

E 6-16
Deferred annuities

• LO7

E 6-17
Deferred annuities;
solving for annuity
amount

• LO7, LO8

E 6-18
Lease payments

• LO9

E 6-19
Concepts terminology

• LO1 through LO3, LO5

The Field Detegoni Company sold merchandise to the Abel Company on June 30, 2006. Payment was made in the form of a noninterest-bearing note requiring Abel to pay \$85,000 on June 30, 2008. Assume that 10% interest rate properly reflects the time value of money in this situation.

Required:

1. Calculate the amount at which Field should record the note receivable and corresponding sales revenue on June 30, 2006.

2. On June 30, 2006, Field purchased a new automobile for \$20,000. Abel made a cash down payment of \$5,000 and will pay the remaining balance in 36 monthly payments, beginning one month from the date of purchase. Financing charges are 10% interest rate.

Required:

1. Calculate the amount of the required monthly payments.

2. Long Warchewski borrowed \$100,000 from a bank and signed a note requiring 20 annual payments of \$12,386 beginning one year from the date of the agreement.

Required:

1. Determine the interest rate implicit in this agreement.

3. Sandy Kupchick just graduated from State University with a bachelor's degree in history. During her two years at the U, Sandy accumulated \$12,000 in student loans. She asks for your help in determining the amount of the quarterly loan payment. She tells you that the loan must be paid back in five years and that the stated interest rate is 8%. Payments begin in three months.

Required:

1. Determine Sandy's quarterly loan payment.

4. On September 30, 2006, the San Filippo Corporation issued 5% stated rate bonds with a face amount of \$400 million. The bonds mature on September 30, 2026 (20 years). The market rate of interest for similar bonds was 7%. Interest is paid semiannually on March 31 and September 30.

Required:

1. Determine the price of the bonds on September 30, 2006.

5. Lincoln Company purchased merchandise from Grandville Corp. on September 30, 2006. Payment was made in the form of a noninterest-bearing note requiring Lincoln to make six annual payments of \$5,000 on each September 30, beginning on September 30, 2014.

Required:

1. Calculate the amount at which Lincoln should record the note payable and corresponding purchases on September 30, 2006, assuming that an interest rate of 10% properly reflects the time value of money in this situation.

6. On April 1, 2006, John Vaughn purchased appliances from the Acme Appliance Company for \$1,200. In order to increase sales, Acme allows customers to pay in installments and will defer any payments for six months. John will make 18 equal monthly payments, beginning October 1, 2006. The agreed interest rate implicit in this agreement is 24%.

Required:

1. Calculate the monthly payment necessary for John to pay for his purchases.

7. On June 30, 2006, Fly-By-Night Airlines leased a jumbo jet from Boeing Corporation. The terms of its lease require Fly-By-Night to make 20 annual payments of \$400,000 on each June 30. Accounting records require this lease to be recorded as a liability for the present value of scheduled payments. Assume that a 10% interest rate properly reflects the time value of money in this situation.

Required:

1. At what amount should Fly-By-Night record the lease liability on June 30, 2006, assuming that the first payment will be made on June 30, 2007?
2. At what amount should Fly-By-Night record the lease liability on June 30, 2006, before any payments are made, assuming that the first payment will be made on June 30, 2006?

Listed below are several terms and phrases associated with concepts discussed in the chapter. Pair each term from List A (by letter) with the item from List B that is most appropriately associated with it.



List A

- 1 Interest
- 2 Monetary asset
- 3 Compound interest
- 4 Simple interest
- 5 Annuity
- 6 Present value of a single amount
- 7 Annuity due
- 8 Future value of a single amount
- 9 Ordinary annuity
- 10 Effective rate or yield
- 11 Nonmonetary asset
- 12 Time value of money
- 13 Nonmonetary liability

List B

- a First cash flow occurs one period after agreement begins
- b The rate at which money will actually grow during a year
- c First cash flow occurs on the first day of the agreement
- d The amount of money that a dollar will grow to
- e Amount of money paid/received in terms of amount borrowed/lent
- f Obligation to pay a sum of cash, the amount of which is fixed
- g Money can be invested today and grow to a larger amount
- h No fixed dollar amount attached
- i Computed by multiplying an invested amount by the interest rate
- j Interest calculated on invested principal plus accumulated interest
- k A series of equal-sized cash flows
- l Amount of money required today that is equivalent to a given future amount
- m Claim to receive a fixed amount of money

5-10

Multiple-choice CMA
exam time value of
money concepts

Problem 6-10 100%

The following questions dealing with the time value of money are adapted from questions that previously appeared in Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.ifm.net.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

1. First information is regarding the future value of an investment that will also effect on March 1. The company must make eight equal payments with the first payment due on March 1. The company must respond to the evaluation of the future value.

- a. The present value of an annuity due
- b. The present value of an ordinary annuity
- c. The future value of an annuity due
- d. The future value of an ordinary annuity

2. Janet Taylor Current West has \$75,000 in a bank account as of December 31, 2004. If the company plans on depositing \$4,000 in the account at the end of each of the next 3 years (2005, 2006, 2007) and if the company in the account earn 8% per year what will the account balance be at December 31, 2007?

go to the office if that the money

8% Interest Rate Factors

| Period | Future Value of an Amount of \$1 | Future Value of an Ordinary Annuity of \$1 |
|--------|----------------------------------|--|
| 1 | 1.08 | 1.00 |
| 2 | 1.17 | 2.08 |
| 3 | 1.26 | 3.25 |
| 4 | 1.36 | 4.51 |

a. \$8,140

b. \$8,140

c. \$40,170

d. \$1,100

PROBLEMS

Additional Problems and Solutions are available at the end of the chapter.

An alternate exercise and problem set is available on the text website: www.mhhe.com/caplan/problems

PA
values of alternatives

Problem 6-10

Requist Company wishes to acquire a molding machine to be used in its manufacturing process. Two types of machines that would be appropriate are presently on the market. The company has determined the following:

Machine A could be purchased for \$40,000. It will last 10 years with annual maintenance costs of \$1,000 per year. After 10 years the machine can be sold for \$5,000.

Machine B could be purchased for \$40,000. It also will last 10 years and will require maintenance costs of \$4,000 in year three, \$5,000 in year six, and \$6,000 in year eight. After 10 years the machine will have no salvage value.

P 6-2

Present and future value

• D6 LO1 LO9

Required

Determine which machine Esquero should purchase. Assume an interest rate of 2% properly reflects the time value of money in this situation and that maintenance costs are paid at the end of each year. Ignore income taxes.

Johnstone Company is facing several decisions regarding investing and financing activities. Address each decision independently.

- On June 30, 2006, the Johnstone Company purchased equipment from Cresover Corp. Johnstone agreed to pay Cresover \$50,000 on the purchase date and the balance in five annual installments of \$10,000 in each June 30 beginning June 30, 2007. Assuming that an interest rate of 10% properly reflects the time value of money in this situation, at what amount should Johnstone value the equipment?
- Johnstone needs to accumulate sufficient funds to pay a \$400,000 debt that comes due on December 31, 2011. The company will accumulate the funds by making five equal annual deposits in an account paying 6% interest compounded annually. Determine the required annual deposit if the first deposit is made on December 31, 2006.
- On January 1, 2006, Johnstone leased an office building. Terms of the lease require Johnstone to make 20 annual lease payments of \$120,000 beginning on January 1, 2006. A 10% interest rate is implicit in the lease agreement. At what amount should Johnstone record the lease liability on January 1, 2006, if no other lease payments are made?

P 6-3

Analysis of alternatives

• D1 LO2

Harding Company is in the process of purchasing several large pieces of equipment from Dunning Machine Corporation. Several financing alternatives have been offered by Dunning:

- Pay \$1,000,000 in cash immediately.
- Pay \$420,000 immediately and the remainder in 10 annual installments of \$80,000, with the first installment due in one year.
- Make 10 equal installments of \$175,000 with the first payment due immediately.
- Make one lump-sum payment of \$1,900,000 five years from date of purchase.

Determine the best alternative for Harding, assuming that Harding can borrow funds at an 8% interest rate.

John Higgins is contemplating the purchase of a small restaurant. The purchase price listed by the seller is \$800,000. John has used past financial information to estimate that the net cash flows (cash inflows less cash outflows) generated by the restaurant would be as follows:

| Years | Amount |
|-------|----------|
| 1-6 | \$80,000 |
| 7 | 70,000 |
| 8 | 60,000 |
| 9 | 50,000 |
| 10 | 40,000 |

If purchased, the restaurant would be held for 10 years and then sold for an estimated \$700,000.

Required

Assuming that John desires a 10% rate of return on this investment, should the restaurant be purchased? Assume that all cash flows occur at the end of the year.

John and Sally Clausen are contemplating the purchase of a hardware store from John Duggan. The Clausens anticipate that the store will generate cash flows of \$70,000 per year for 20 years. At the end of 20 years, they intend to sell the store for an estimated \$400,000. The Clausens will finance the purchase with a variable rate mortgage. Interest rates will increase twice during the 20-year life of the mortgage. Accordingly, the Clausens desired rate of return on this investment varies as follows:

| Years 1-5 | 8% |
|-------------|-----|
| Years 6-10 | 10% |
| Years 11-20 | 12% |

Required

What is the maximum amount the Clausens should pay John Duggan for the hardware store? (Assume that all cash flows occur at the end of the year.)

The following situations should be considered independently.

- John Jamison wants to accumulate \$50,000 for a down payment on a small business. He will invest \$10,000 today in a bank account paying 8% interest compounded annually. Approximately how many years will it take John to reach his goal?
- The Jackson Ltd. Company purchased merchandise from a supplier for \$28,700. Payment was made by a noninterest-bearing note requiring Jackson to make five annual payments of \$7,000 beginning one year from the date of purchase. What is the interest rate implicit in this agreement?

P 6-4

Investment decision; varying rates

• D1 LO2

Excel

P 6-5

Solving for unknowns

• D3 LO2

Excel

3. Sam Robinson borrowed \$10,000 from a friend and promised to pay the loan in 10 equal annual installments beginning one year from the date of the loan. Sam's friend would like to be reimbursed for the time value of money at a 4% annual rate. What is the annual payment Sam must make to pay back his friend?

Lorville Company defaulted on a \$250,000 loan that was due on December 31, 2006. The bank has agreed to allow Lorville to repay the \$250,000 by making a series of equal annual payments beginning on December 31, 2007.

Required:

1. Calculate the required annual payment if the bank's interest rate is 10% and four payments are to be made.
2. Calculate the required annual payments if the bank's interest rate is 8% and five payments are to be made.
3. If the bank's interest rate is 10%, how many annual payments of \$50,000 would be required to repay the debt?
4. If three payments of \$104,087 are to be made, what interest rate is the bank charging Lorville?

On January 1, 2006, the Montgomery Company agreed to purchase a building by making six payments. The first three are to be \$25,000 each, and will be paid on December 31, 2006, 2007, and 2008. The last three are to be \$40,000 each and will be paid on December 31, 2009, 2010, and 2011. Montgomery borrowed the money at a 10% annual rate.

Required:

1. At what amount should Montgomery record the note payable and corresponding cost of the building on January 1, 2006?
2. How much interest expense on this note will Montgomery recognize in 2006?

John Roberts is 35 years old and has been asked to accept early retirement from his company. The company has offered John three alternative compensation packages to induce John to retire.

1. \$100,000 cash payment to be paid immediately.
2. A 20-year annuity of \$16,000 beginning immediately.
3. A 10-year annuity of \$28,000 beginning at age 65.

Required:

Which alternative should John choose assuming that he is able to invest funds at a 7% rate?

On January 1, 2006, The Harrell Company purchased merchandise from a supplier. Payment was a noninterest-bearing note requiring five annual payments of \$20,000 on each December 31, beginning on December 31, 2006, and a lump-sum payment of \$100,000 on December 31, 2010. A 10% interest rate properly reflects the time value of money in this situation.

Required:

Calculate the amount at which Harrell should record the note payable and corresponding merchandise purchased on January 1, 2006.

Beining Manufacturing Company is negotiating with a customer for the lease of a large machine manufactured by Beining. The machine has a cash price of \$100,000. Beining wants to be reimbursed for financing the machine at an 8% annual interest rate.

Required:

1. Determine the required lease payment if the lease agreement calls for 10 equal annual payments beginning immediately.
 2. Determine the required lease payment if the first of 10 annual payments will be made one year from the date of the agreement.
- Determine the required lease payment if the first of 10 annual payments will be made immediately and Beining will be able to sell the machine to another customer for \$20,000 at the end of the 10-year lease.

(This is a variation of the previous problem focusing on compensating periods of varying length.)

Beining Manufacturing Company is negotiating with a customer for the lease of a large machine manufactured by Beining. The machine has a cash price of \$100,000. Beining wants to be reimbursed for financing the machine at a 12% annual interest rate over the five-year lease term.

Required:

1. Determine the required lease payment if the lease agreement calls for 10 equal semiannual payments beginning six months from the date of the agreement.
2. Determine the required lease payment if the lease agreement calls for 20 equal quarterly payments beginning immediately.
3. Determine the required lease payment if the lease agreement calls for 60 equal monthly payments beginning one month from the date of the agreement. The present value of an ordinary annuity factor for $n = 60$ and $i = 1\%$ is 41.4759.

P 6-13
Lease vs. buy
alternatives

• LO3 LO7 LO9

P 6-14
Deferred annuities;
pension obligation

• LO7 LO9

Excel

Kiddy Toy Corporation needs to acquire the use of a machine to be used in the manufacturing process. The machine needed is manufactured by Lullie Corp. The machine can be used for 10 years and then sold for \$4,000 at the end of its useful life. Lullie has presented Kiddy with the following options:

1. **Buy machine.** The machine could be purchased for \$36,000 in cash. All maintenance and insurance costs, which approximate \$5,000 per year, would be paid by Kiddy.
2. **Lease machine.** The machine could be leased for a 10-year period for an annual lease payment of \$25,000 with the first payment due immediately. All maintenance and insurance costs will be paid for by the Lullie Corp. and the machine will be returned to Lullie at the end of the 10-year period.

Required:

Assuming that a 12% interest rate properly reflects the time value of money in this situation and that all maintenance and insurance costs are paid at the end of each year, determine which option Kiddy should choose. Ignore income tax considerations.

Three employees of the Horizon Drinkings—Tucker, Evans, and Chance—will receive annual pension payments from the company when they retire. The employees will receive their annual payments for as long as they live. Life expectancy for each employee is 5 years beyond retirement. Their names, the amount of their annual pension payments, and the date they will receive their first payment are shown below.

| Employee | Annual Payment | Date of First Payment |
|----------|----------------|-----------------------|
| Tucker | \$20,000 | 7-1-09 |
| Evans | 25,000 | 7-01-10 |
| Chance | 30,000 | 2-31-11 |

Required:

1. Compute the present value of the pension obligation to these three employees as of December 31, 2009, assuming a 12% interest rate.

The company wants to have enough cash invested at December 31, 2009, to provide for all three employees. To accumulate enough cash, they will make three equal annual contributions to a fund that will earn 8% interest compounded annually. The first contribution will be made on December 31, 2009. Compute the amount of this required annual contribution.

BROADEN YOUR PERSPECTIVE



Accounting Case 6-3
Present value of an
annuity

• LO9

Accounting Case 6-3
Present value of an
annuity

• LO9 LO9

Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

In a heavy afternoon rain, Gary and John Smith were working on their friend's family birthday car. Eleven minutes later a speeding truck slammed into them on the freeway causing John to spend six months in a coma. Gary became paraplegic and needed a wheelchair and a specially designed car. Gary was 40-year-old and had an on-again-off-again relationship with the truck driver's company. He was awarded payment for all medical costs and attorney fees, plus a lump-sum settlement of \$2,330,716. At the time of the accident, John was president of his family's business and earned approximately \$200,000 per year. He had anticipated working 25 more years before retirement.⁸

John's sister, an acquaintance of yours from college, has asked you to explain to her how the compensation with the settlement amount. "They said it was based on his total future income and a 7% opportunity cost," she explained. "But it was all legal-speak to me."

Required:

How was the amount of the lump-sum settlement determined? Create a calculation that might help with your understanding.

Sally Hammon has performed well in her first business position at the Midwest Computers, Inc. and has earned a bonus. She is considering among the following three bonus plans:

1. A \$5,000 cash bonus paid now.
2. A \$10,000 annual cash bonus to be paid each year over the next six years, with the first \$10,000 paid now.
3. A three-year \$22,000 annual cash bonus with the first payment due three years from now.

Required:

How should Sally decide?

Required:

Evaluate the three alternative bonus plans. Sally can earn a 6% annual return on her investments.

Harvey Alexander, an all-league pitcher and four-time player, has just declined free agency. Two teams, the San Francisco Giants and the Dallas Cowboys, have made Harvey the following offers to obtain his services.

Giants: \$1 million signing bonus payable immediately and no annual salary of \$1.5 million for the five-year term of the contract.

Cowboys: \$2.5 million signing bonus payable immediately and no annual salary of \$1 million for the five-year term of the contract.

With both contracts, the annual salary will be paid in one lump sum at the end of the five-year season.

You have been hired as a consultant to Harvey's agent, Phil Marks, to evaluate the two contracts. Write a short letter to Phil with your recommendation including the method you used to reach your conclusion. Assume that Harvey has no preference between the two teams and that the decision will be based entirely on monetary considerations. Also assume that Harvey can invest his money and earn an 8% annual return.

The Damon Investment Company manages a mutual fund composed mostly of speculative stocks. You recently saw an ad claiming that investments in the funds have been earning a rate of return of 2%. This rate seemed quite high so you called a friend who works for one of Damon's competitors. The friend told you that the 2% return figure was determined by dividing the two-year appreciation on investments in the fund by the average investment. In other words, \$100 invested in the fund two years ago would have grown to \$124.521 = $\$100 \times 2.451$.

Required:

Discuss the ethics of the 2.45% return claim made by the Damon Investment Company.

Hughes Corporation is considering replacing a machine used in the manufacturing process with a new more efficient model. The purchase price of the new machine is \$150,000 and the old machine can be sold for \$40,000. Output for the two machines is identical; they will both be used to produce the same amount of product for five years. However, the annual operating costs of the old machine are \$18,000 compared to \$10,000 for the new machine. Also, the new machine has a salvage value of \$25,000, but the old machine will be worthless at the end of the five years.

Required:

Should the company sell the old machine and purchase the new model? Assume that an 8% rate properly reflects the time value of money in this situation and that all operating costs are paid at the end of the year. Ignore the effect of the decision on income taxes.

Samsung Electronics Corporation is a leading, independent global provider of customized, integrated electronics manufacturing services. The company's 2004 financial statements included the following information in the long-term debt disclosure note:

| | In thousands | |
|--|--------------|----------|
| | 2004 | 2003 |
| Zero-coupon subordinated debt due 2020 | \$68,092 | \$58,473 |

Zero-coupon bonds pay no interest. The disclosure stated that bonds with a \$1,000 par value were issued on September 12, 2000, for \$741.5 million. The maturity value indicates the amount that the company will pay bondholders in 2020. Each individual bond has a maturity value (face amount) of \$1,000. The company is accreting the issue price to maturity value using the bond's effective interest rate computed via a semiannual period. Since their issuance, the company has repurchased \$360.6 million in maturity value of these bonds.

Required:

- Determine the effective interest rate on the bonds.
- Determine the value price of one \$1,000 maturity value bond.

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix B located at the back of this text.

Required:

- Identify the various liabilities that are valued by applying the time value of money concept.
- What rate is used to value pension obligations?

FedEx Corporation



Economic Resources

2

SECTION

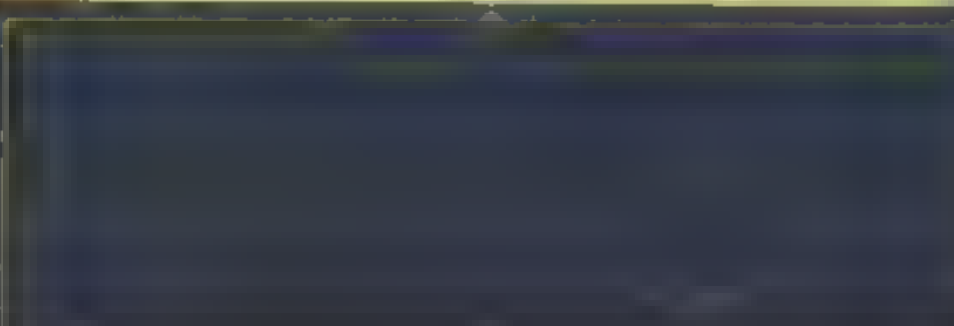
7

CHAPTER

Cash and Receivables



- After studying this chapter, you should be able to:
- C1 Identify what is covered by internal control and describe some key elements of an internal control system for cash receipts and disbursements.
 - C2 Explain the possible restrictions on cash and their implications for classification in the balance sheet.
 - C3 Distinguish between the gross and net methods of accounting for cash discounts.
 - C4 Describe the accounting treatment for merchandise returns.
 - L05 Describe the accounting treatment of anticipated uncollectible accounts receivable.
 - L06 Describe the two approaches to estimating uncollectible accounts.
 - D7 Describe the accounting treatment of short-term receivables.
 - L08 Differentiate between the use of receivables in financing arrangements accounted for as a secured borrowing and those accounted for as a sale.
 - L09 Describe how entities that offer a discount for early payment in receivables and calculate the key ratios used by analysts to monitor this investment.



FINANCIAL REPORTING CASE



What Does It All Mean?

Your roommate Todd Buckley, was surfing the net looking for information about his future employer, Cisco Systems. Todd, an engineering major, recently accepted a position with Cisco, the world's largest provider of hardware, software, and services that drive the Internet. He noticed an article on TheStreet.com entitled "Cisco Triples Bad-Account Provision." "This doesn't look good," Todd grumbled. "The article says that my new employer's deadbeat account column has more than tripled in the span of a year. I guess all those dot-com companies are not paying their bills. But this sentence is confusing. For the fiscal first quarter Cisco moved \$275 million from operating cash to cover potential nonpayments from faked customers. Did they actually move cash and if so, where did they move it and why?"

You studied accounting for bad debts in your intermediate accounting class and are confident you can help. After reading the article, you com-

fort Todd. "First of all, the term *provision* just means expense, and no, Cisco didn't move any cash. The company says what is called the *allowance method* to account for its bad debts, and it looks like it simply recorded \$275 million in expense for the quarter and increased the allowance for uncollectible accounts." Todd was not happy with your advice. "Provision? allowance method? uncollectible accounts? What you to help me understand and not make things worse?" "Okay," you offer, "let's start at the beginning."

By the time you finish this chapter, you should be able to respond appropriately to the questions raised in this case. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

1. Explain the allowance method of accounting for bad debts. (page 314)
2. What approaches might Cisco have used to arrive at the \$275 million bad debt provision? (page 315)
3. Are there any alternatives to the allowance method? (page 317)

In the earlier chapters of this text, we studied the underlying measurement and reporting concepts for the basic financial statements presented to external decision makers. Now we turn our attention to the elements of those financial statements. Specifically, we further explore the elements of the balance sheet including the income statement effects of transactions involving these elements. We first address assets, then liabilities, and finally shareholders' equity. This chapter focuses on the current assets cash and cash equivalents and receivables.

PART A CASH AND CASH EQUIVALENTS

Cash includes currency and coins, balances in checking accounts, and items receivable for deposit in these accounts, such as checks and money orders received from customers. These forms of cash represent amounts readily available to pay off debt or to use in operations without any legal or contractual restriction.

Managers typically invest temporarily idle cash to earn interest on those funds rather than keep an unnecessarily large checking account. These amounts are essentially equivalent cash because they can quickly become available for use as cash. So, short-term, highly liquid investments that can be readily converted to cash with little risk of loss are viewed as cash equivalents. For financial reporting we make no distinction between cash and the first currency vehicles we just balanced and amounts held in cash equivalent investments.

Cash equivalents include such items as certain money market funds, treasury bills, and commercial paper. To be classified as cash equivalents, these investments must have a maturity date no longer than three months from the date of purchase. Companies also exercise flexibility in designating cash equivalents and must establish individual policies regarding which short-term, highly liquid investments are classified as cash equivalents. A company policy should be consistent with the usual convention for acquiring certain types of investments. The policy should be disclosed in the notes to the financial statements. Graphic shows a note from a recent annual report of the **Sevens, Roebuck and Co.** that provides a description of the company's cash equivalents.

A company must disclose the nature and carrying amount of cash and cash equivalents at the end of the reporting period. The disclosure should also describe the measurement basis used for cash and cash equivalents.

Graphic 3-5
Disclosure of Cash
Equivalents—Sevens
Roebuck and Co.

Summary of Significant Accounting Policies (in part)

Cash and Cash Equivalents

Cash equivalents include short-term, highly liquid investments with original maturities of three months or less at the date of purchase. Cash equivalents are reported at fair value, which is the same as cost. Cash equivalents are reported at the end of the reporting period at the end of the reporting period. Cash equivalents are reported at the end of the reporting period at the end of the reporting period. Cash equivalents are reported at the end of the reporting period at the end of the reporting period.

The measurement and reporting of cash and cash equivalents are largely straightforward because cash generally presents no measurement problems. It is the standard medium of exchange and the basis for measuring assets and liabilities. Cash and cash equivalents usually are combined and reported as a single amount in the balance sheet. However, cash that is not available for use in current operations because it is restricted for a special purpose usually is classified in one of the noncurrent asset categories. Restricted cash is discussed later in this chapter.

All assets must be safeguarded against possible misuse. However, cash is the most liquid asset and the asset most easily expropriated. As a result, a system of internal control of cash is a key accounting issue.

Internal Control

- **LO1** The success of any business enterprise depends on an effective system of internal control. Internal control refers to a company's plan to (a) encourage adherence to company policies and procedures, (b) promote operational efficiency, (c) minimize errors and theft, and (d) ensure the accuracy of financial reporting.

to ensure the reliability and accuracy of accounting data. From a financial accounting perspective, the focus is on controls intended to improve the accuracy and reliability of accounting information and to safeguard the company's assets.

Recall from our discussion in Chapter 1 that Section 404 of the *Sarbanes-Oxley Act of 2002* requires that companies not only document their internal controls and assess their adequacy but that the assessments must be done by an officer or officers of the company. The Public Company Accounting Oversight Board's *Internal Control—A Framework* further requires the auditor to express an opinion on whether the company's internal control is effective or not.

Many companies have had to struggle to determine if they comply with the requirements of Section 404. A large number of consulting firms and software providers have developed these systems. A framework for designing an internal control system is provided by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. In 1999, the organization established a committee to study the quality of financial reporting through, among other things, effective internal controls.

COSO defines internal control as a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations
- Reliability of financial reporting
- Compliance with applicable laws and regulations.²

A critical aspect of an internal control system is the *separation of duties*. Individuals that are physically responsible for assets should not also have access to accounting records. For example, if the same individual has control of both the supplies inventory and the accounting records, the theft of supplies could be concealed by a reduction of the supplies account.

Cash is the most liquid of all assets; a well-designed and functioning system of internal control must surround all cash transactions. Separate procedures must exist, ideally those involving cash should not be involved in those involving receivables. Accounting records must be in place to ensure the reconciliation of cash book balances to bank statements.

INTERNAL CONTROL PROCEDURES—CASH RECEIPTS

Consider the cash receipt process. Most nonretail businesses receive payment for goods by check received through the mail. An approach to internal control over cash receipts might include the following steps:

1. Employee A opens the mail each day and prepares a summary listing of all checks, including the amount and payor's name.
2. Employee B takes the checks, along with one copy of the listing, to the person responsible for depositing the checks in the company's bank account.
3. A second copy of the check listing is sent to the accounting department where the receipts are entered into the records.

The amount received should equal the amount deposited as verified by comparison with the bank-generated deposit slip and the amount recorded in the accounting records. This procedure secures accuracy as well as safeguard cash against theft.

INTERNAL CONTROL PROCEDURES—CASH DISBURSEMENTS

Proper controls for cash disbursements should be designed to prevent any unauthorized payments and ensure that disbursements are recorded in the proper general ledger and subsidiary ledger accounts. Important elements of a cash disbursement control system include

1. All disbursements, other than very small disbursements from petty cash, should be made by check. This provides a permanent record of all disbursements.

An employee who is responsible for opening the mail and preparing the check listing should not be responsible for depositing the checks in the bank account. This separation of duties is a key internal control.

Employees involved in cash receipts should not be involved in cash disbursements. This separation of duties is a key internal control.

² COSO's *Internal Control—A Framework* is available at <http://www.coso.org>. The COSO Framework is the common framework for internal control.

- All expenditures should be authorized before a check is prepared. For example, a vendor invoice for the purchase of inventory should be compared with the purchase order and receiving report to ensure the accuracy of quantity, price, part numbers, and so on. This process should include verification of the proper ledger accounts to be debited.
- Checks should be signed only by authorized individuals.

Responsibilities for check signing, check writing, check mailing, cash disbursement distribution, and recordkeeping should be separated whenever possible.

An important part of any system of internal control of cash is the periodic reconciliation of book balances and bank balances to the correct balance. In addition, a petty cash system is employed by many business enterprises. We cover these two topics in Appendix 7 beginning on page 332.

Restricted Cash and Compensating Balances

- We discussed the classification of assets and liabilities in Chapter 3. You should recall that only cash available for current operations or to satisfy current liabilities is classified as a current asset. Cash that is restricted in some way and not available for current use usually is reported as *investments and funds or other assets*.

Restrictions on cash can be informal, arising from management's intent to use a certain amount of cash for a specific purpose. For example, a company may set aside funds for future plant expansion. This cash, if material, should be classified as *investments and funds or other assets*. Sometimes restrictions are contractually imposed. Debt instruments, for instance, frequently require the borrower to set aside funds (often referred to as a *sinking fund*) for the future payment of a debt. In these instances, the restricted cash is classified as *investments and funds or other assets* if the debt is classified as *noncurrent*. On the other hand, the liability is current, the restricted cash also is classified as current. Disclosure notes should describe any material restrictions of cash.

Banks frequently require cash restrictions in connection with loans or loan commitments (lines of credit). Typically, the borrower is asked to maintain a specified balance in a noninterest or noninterest-bearing account at the bank (creditor). The required balance usually is some percentage of the committed amount (say 1% to 5%). These are known as *compensating balances* because they compensate the bank for granting the loan or extending a line of credit.

A compensating balance results if the borrower is paying an effective interest rate higher than the stated rate on the debt. For example, suppose that a company borrows \$1,000,000 from a bank at an interest rate of 12%. If the bank requires a compensating balance of \$200,000 to be held in a noninterest-bearing checking account, the company really is borrowing only \$800,000 (the loan less the compensating balance). This means an effective interest rate of 15% (\$120,000 interest divided by \$800,000 cash available for use).

The classification and disclosure of a compensating balance depends on the nature of the related debt. If the debt is a current liability, the compensating balance is classified as *current*. If the debt is a noncurrent liability, the compensating balance is classified as *investments and funds or other assets*, pending on the classification of the related debt. In either case, note disclosure is required.

The following example illustrates the classification and disclosure of a compensating balance. The example is based on the actual arrangement of Rag Shops, Inc., a company that operates a chain of retail craft and fabric stores in a number of eastern states.

Example: Rag Shops, Inc. has a line of credit with a bank. The bank requires a compensating balance of 5% of the line of credit. The line of credit is classified as a current liability. The compensating balance is classified as a current asset.

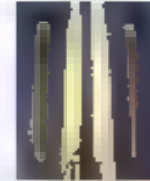
Note 8—Credit Facility (in part)

The Company maintains a \$100 million credit facility with a bank group consisting of Bank of America, Citicorp, and JPMorgan Chase. The credit facility is available to the Company for working capital purposes and for general corporate purposes. The credit facility is subject to certain financial covenants, including a requirement that the Company maintain a certain level of liquidity.

The bank will also provide letters of credit on the Company's behalf for the purpose of entering into commercial contracts. The bank also provides a line of credit for the Company's use.

GRAPHIC 7-2

Disclosure of Compensating Balances—Reg Shop, Inc.

**DECISION MAKERS' PERSPECTIVE**

Cash often is referred to as a *nonearning* asset because it earns no interest. For this reason, managers invest idle cash in either cash equivalents or short-term investments, both of which provide a return. Management's goal is to hold the minimum amount of cash necessary to conduct normal business operations, meet its obligations, and take advantage of opportunities. Too much cash reduces profits through low returns, while too little cash increases risk. This tradeoff between risk and return is an ongoing choice made by internal decision makers. Whether the choice made is appropriate is an ongoing assessment made by investors and creditors.

A company must have cash available for the compensating balances we discussed in the previous section as well as for planned disbursements related to normal operating, investing, and financing cash flows. However, because cash inflows and outflows can vary from period to period, a company needs to build total cash cushion as a precaution against that uncertainty. The size of the cushion depends on the company's ability to convert cash equivalents and short-term investments into cash quickly along with its short-term borrowing capacity.

Liquidity is a measure of a company's cash position and overall ability to obtain cash in the normal course of business. A company is assumed to be liquid if it has sufficient cash or the ability of converting its other assets to cash in a relatively short period of time so that current needs can be met. Frequently, liquidity is measured with respect to the ability to pay current maturing debt. The current ratio is one of the most common ways of measuring liquidity and is calculated by dividing current assets by current liabilities. By comparing liabilities that must be satisfied in the near term with assets that either are cash or will be convertible to cash in the near term, we have a basic measure of a company's liquidity. We can refine the measure by adjusting for the implicit assumption of the current ratio that all current assets are equally liquid. In the acid test or quick ratio, the numerator consists of quick assets, which include only cash and cash equivalents, notes receivable, and accounts receivable. By eliminating inventories and prepaid expenses from the current assets that are less liquid, the quick ratio provides a more conservative measure of a company's short-term liquidity than with the current ratio. We discussed and illustrated these liquidity ratios in Section 7.1.

We should evaluate the adequacy of any ratio in the context of the industry in which the company operates and other specific circumstances. Bear in mind, though, that industry averages are only one indication of acceptability and any ratio is but one indication of liquidity. Profitability, for instance, is perhaps the best long-run indication of liquidity. And a company may be very efficient in managing its current assets so that, say, receivables are more liquid than they otherwise would be. The receivables turnover ratio we discuss in Part B of this chapter offers a measure of management's efficiency in this regard.

There are many techniques that a company can use to manage cash balances. A discussion of these techniques is beyond the scope of this text. However, it is sufficient here to understand that management must make important decisions related to cash that have a direct relationship to a company's profitability and risk. Because the lack of prudent cash management can lead to the failure of an otherwise sound company, it is essential that managers as well as stock investors and creditors maintain close vigil over this facet of a company's health. ■

FIGURE 7-1

Partial Cash Flow Statement

Reg Shop, Inc.

For the Year Ended December 31, 2010

(in thousands of dollars)

Operating activities

Net income

Depreciation and amortization

Change in accounts receivable

Change in accounts payable

Change in other current assets

Change in other current liabilities

Net cash provided by operating activities

Investing activities

Capital expenditures

Acquisition of intangible assets

Proceeds from sale of property, plant, and equipment

Net cash used in investing activities

Financing activities

Proceeds from issuance of common stock

Proceeds from issuance of debt

Payments of dividends

Net cash provided by financing activities

Net change in cash and cash equivalents

Cash and cash equivalents at beginning of year

Cash and cash equivalents at end of year

Supplemental disclosures

Interest paid

Income taxes paid

Other non-cash transactions

Net cash provided by operating activities

Net cash used in investing activities

Net cash provided by financing activities

Net change in cash and cash equivalents

Cash and cash equivalents at beginning of year

Cash and cash equivalents at end of year

Supplemental disclosures

Interest paid

Income taxes paid

Other non-cash transactions

PART B

CURRENT RECEIVABLES

Receivables represent a company's claims to the future collection of cash, other assets, or services. Receivables resulting from the sale of goods or services on account are called *instruments receivable* and often are referred to as *trade receivables*. *Nontrade receivables* are those other than trade receivables and include tax refund claims, interest receivable, and loans by the company to other entities including stockholders and employees. When a receivable, trade or nontrade, is accompanied by a formal promissory note, it is referred to as a *note receivable*. We consider notes receivable after first discussing accounts receivable.

Accounts receivable are assets that arise from a company's claim to the future collection of cash or other assets from another company. The company's obligation to pay cash (the company's liability) is the same as the other company's claim to cash (the company's receivable). The measurement issues are identical. Chapter 13 addresses accounts payable and other current liabilities.

Accounts Receivable

Most businesses receive credit from the customer either because it is not practical to require immediate cash payment or to encourage customers to purchase more. The company's obligation to pay cash (the company's liability) is the same as the other company's claim to cash (the company's receivable). The measurement issues are identical. Chapter 13 addresses accounts payable and other current liabilities.

The point at which accounts receivable are recognized depends on the earnings process of the company. We discussed the recognition principle in Chapter 5 and the earnings that may be realized as revenue can be recognized. Recall that revenue can be recognized only when the earnings process is *virtually complete* and *collection* from the customer is *reasonably certain*. For financial accounting purposes, the earnings process is the point at which the product is received, so revenue and related receivables are recognized at that time.

INITIAL VALUATION OF ACCOUNTS RECEIVABLE

We know from prior discussions that receivables should be recorded at the present value of future cash receipts using a realistic interest rate. So, a \$10,000 sale on credit due in 30 days should result in a receivable valued at the present value of the \$10,000. In other words, the revenue portion of the \$10,000 due in 30 days should be removed and recognized as interest revenue over the 30-day period, not as sales revenue at date of delivery of the product. If the monthly interest rate is 2%, the receivable would be valued at \$9,804, calculated by multiplying the future cash payment of \$10,000 by the present value of \$1 factor for nine periods (2%).

If we use because the difference between the future and present values of accounts receivable often is immaterial, *APB Opinion 21* specifically excludes accounts receivable from the general rule that receivables be recorded at present value.⁶ Therefore, accounts receivable initially are valued at the exchange price agreed on by the buyer and seller. In our example, both the seller and the buyer would record revenue at \$10,000. We discuss two aspects of accounts receivable related to their initial valuation—trade discounts and cash discounts.

Trade Discounts. Companies frequently offer trade discounts to customers, usually a percentage reduction from the list price. Trade discounts can be a way to change prices without publishing a new catalog or to distinguish real prices from competitors. They also are used to give quantity discounts to large customers. For example, a manufacturer might list a machine part at \$2,500, but sell it to a customer at list less a 10% discount. The trade discount, \$250, is not recognized directly when recording the transaction. The discount is recognized indirectly by recording the sale at the net of discount price of \$2,250, not at the list price.

⁶ Included in *Exemptions and Exceptions to GAAP*, paragraph 10, *APB Opinion 21*, *APB 21*, *APB 21*.

Cash Discounts. It is important to distinguish a *trade discount* from a *cash discount*. *Cash discounts*, often called *sales discounts*, represent reductions not in the selling price of a good or service but in the amount due paid by a credit customer at or within a specified period of time. It is a discount intended to provide incentive for quick payment.

The amount of the discount and the time period within which it is available usually are conveyed by cryptic terms like *2/10, n/30* (meaning a 2% discount if paid within 10 days, otherwise if payment is within 30 days). There are two ways to record cash discounts: the *gross method* and the *net method*. Under the *gross method*, the entire invoice amount is recorded and any discount taken by the customer is part of sales or revenue. On the other hand, the *net method* considers sales revenue to be the net amount, after discounts, and any discounts not taken by the customer are interest revenue. The discounts are viewed as a concession to the seller for providing financing to the customer. With both methods, discounts taken reduce sales revenue. See the example in Illustration 7-1.

Cash discounts reduce the amount due paid by a credit customer. The amount of the discount and the time period within which it is available are usually conveyed by cryptic terms like *2/10, n/30*.

LO3

The Hawthorne Manufacturing Company offers credit customers a 2% cash discount if the invoice is paid within 10 days. Any payments not paid within these payment terms are stated as *2/10, n/30*. On October 10, 2016, Hawthorne sold merchandise to a customer for \$20,000. The customer paid \$19,600 on October 14 and the remaining balance of \$6,000 on November 4. The appropriate journal entries to record the sale and cash payments of both methods are as follows:

a 2% cash discount if the invoice is paid within 10 days. Any payments not paid within these payment terms are stated as *2/10, n/30*. On October 10, 2016, Hawthorne sold merchandise to a customer for \$20,000. The customer paid \$19,600 on October 14 and the remaining balance of \$6,000 on November 4. The appropriate journal entries to record the sale and cash payments of both methods are as follows:

Illustration 7-1
Cash Discounts

| Gross Method | | | Net Method | | |
|-------------------------|--------|--------|---------------------|--------|--------|
| October 5, 2016 | | | | | |
| Accounts receivable | 20,000 | | Accounts receivable | 19,600 | |
| Sales revenue | | 20,000 | Sales revenue | | 19,600 |
| October 14, 2016 | | | | | |
| Cash | 19,600 | | Cash | 19,600 | |
| Sales discounts | 400 | | Sales discounts | | 400 |
| Accounts receivable | | 19,600 | Accounts receivable | | 19,600 |
| November 4, 2016 | | | | | |
| Cash | 6,000 | | Cash | 6,000 | |
| Accounts receivable | | 6,000 | Accounts receivable | | 6,000 |
| | | | Interest revenue | | 120 |

By either method, net sales are reduced by discounts taken.

On the gross method, discounts are recorded as a contra account to sales revenue. On the net method, discounts are recorded as interest revenue.

Notice that by using the *gross method*, we recorded the revenue and related receivable at the full \$20,000 price. On remittance within the discount period, the \$400 discount is recorded as a contra account called *sales discounts*. Thus, a contra account to sales revenue and is subtracted from sales revenue to derive the net sales reported in the income statement. For payments made after the discount period, cash is simply increased and accounts receivable decreased by the gross amount originally recorded.

The gross method views cash discounts not taken as part of sales revenue.

Under the *net method*, we record revenue and the related accounts receivable at the net amount, after the discount applied to the entire price. Payments are recorded as cash and interest revenue. If a customer uses a discount by paying a pay within the discount period, the discount is recorded as interest revenue. In this case, the net revenue in the 2016 income statement would be the same by either method.

The net method records discounts as interest revenue.

| | Gross Method | Net Method |
|-------------------|--------------|------------|
| Sales | \$20,000 | \$19,600 |
| Sales discounts | (400) | 0 |
| Net sales revenue | \$19,600 | \$19,600 |
| Interest revenue | 0 | 120 |
| Total revenue | \$19,600 | \$19,720 |

By either method, net sales are reduced by discounts taken.

With the net method, the gross method usually reflects the reality of the situation: the retailer of \$1,240 and \$1,000 net price usually reflects the net price usually is the price expected by the seller because the discount usually reflects a hefty interest cost that prudent buyers are unwilling to bear. Consider Illustration 7-3. Although the discount rate is stated as 2%, the effective rate really is 36.5%. The buyer must pay 2% of the price to delay payment an additional 20 days beyond the 10-day discount period. To convert this 20-day rate to an annual rate, we multiply by 365/20:

$$2\% \times 365/20 = 36.5\% \text{ effective rate}$$

Understandably, most buyers try to take the discount if at all possible.

The difference between the two methods, in terms of the effect of the transactions on income, is in the timing of the recognition of any discounts not taken. The gross method recognizes discounts not taken as revenue when the sale is made. The net method recognizes them as revenue after the discount period has passed and the cash is collected. These two measurement dates could be in different reporting periods.

From a practical standpoint, the effect on the financial statements of the difference between the two methods usually is immaterial. As a result, most companies use the gross method because it's easier and doesn't require adjusting entries for discounts not taken.

SUBSEQUENT VALUATION OF ACCOUNTS RECEIVABLE

Following the initial valuation of an account receivable, two situations possibly could cause the cash ultimately collected to be less than the initial valuation of the receivable: (1) the customer could return the product, or (2) the customer could default and not pay the agreed-on sales price. When accounting for accounts receivable, we anticipate these possibilities.

LO4

Sales Returns. Sometimes customers are entitled to return the merchandise they purchase if they are not satisfied. We discussed how this policy affects revenue recognition in Chapter 5. We now discuss it from the perspective of asset valuation.

When merchandise is returned for a refund or for credit to be applied to other purchases, the situation is called a sales return. When practical, a dissatisfied customer might be given a special price reduction as an incentive to keep the merchandise purchased.⁴ Returns are common and often substantial in some industries such as food products, publishing, and retailing. In these cases, recognizing returns and allowances only as they occur could cause profit to be overstated in the period of the sale and understated in the return period. For example, assume merchandise is sold to a customer for \$10,000 in December 2006, the last month in the selling company's fiscal year, and that the merchandise cost \$6,000. If all of the merchandise is returned in 2007 after financial statements for 2006 are issued, gross profit will be overstated in 2006 and understated in 2007 by \$4,000. Assets at the end of 2006 also will be overstated by \$4,000 because a \$4,000 receivable would be recorded instead of \$6,000 in inventory.

To avoid misstating the financial statements, when amounts are material, returns should be anticipated by subtracting an allowance for estimated returns. For an example, refer to Illustration 7-2.

The allowance for sales returns is a contra account to accounts receivable. When returns actually occur in the following reporting period, the allowance for sales returns is debited. In this way, income is not reduced in the return period but in the period of the sales revenue.⁵

The perpetual inventory system records increases (debits) and decreases (credits) in the inventory account as they occur. The inventory of \$78,000 in the first set of entries represents merchandise actually returned and on hand, while the inventory of \$42,000 in the second set of entries represents an estimate of the cost of merchandise expected to be returned. This later amount is included in the period-end inventory in the company's balance sheet even though the actual merchandise belongs to other entities.

⁴Of course, if the allowance for sales returns is calculated incorrectly, income is high or low and the return will be misstated.

⁵Of course, if the allowance for sales returns is calculated incorrectly, income is high or low and the return will be misstated.

During 2006, its first year of operations, the Hawthorne Store had sales of \$2,000,000. Its experience indicates that 0% of all sales will bring \$10,000 in sales during 2006 prior to making payments to record sales and merchandise returned during the year, assuming that a perpetual inventory system is used, which follows:

| | | |
|------------------------------|-----------|-----------|
| Sales | | |
| Accounts receivable | 2,000,000 | |
| Sales revenue | | 2,000,000 |
| Cost of goods sold (60%) | 1,200,000 | |
| Inventory | | 1,200,000 |
| Returns | | |
| Sales returns—actual returns | 30,000 | |
| Accounts receivable | | 30,000 |
| Inventory | 18,000 | |
| Cost of goods sold (60%) | | 18,000 |

At the end of 2006, the company would anticipate the following adjusting entries:

| | | |
|-----------------------------|--------|--------|
| Adjusting Entries | | |
| Allowance for sales returns | 30,000 | |
| Inventory | | 18,000 |
| Cost of goods sold (60%) | | 12,000 |

ILLUSTRATION 7-2

Sales Returns

When the company estimates the amount of sales returns, they should be based on the company's past experience. The company should also consider the current market conditions.

Justification: a customer will return merchandise because it has been damaged, during shipping, or defective. This possibility must be taken into account when estimating the amount of sales returns. In Chapter 4, inventory is valued at the lower of cost or market. There is a change in defective merchandise returned, which must be written down to market value.

Assuming that the estimates of future returns are correct, the following summary journal entry would be recorded in 2007:

| | | |
|-----------------------------|--------|--------|
| Allowance for sales returns | 30,000 | |
| Inventory | | 18,000 |
| Cost of goods sold | | 12,000 |

What happens if the estimate of future returns turns out to be more or less than \$30,000? It varies from previous discussions that when an estimate turns out to be wrong, we don't rephrase years' financial statements to reflect the new estimate. Instead, we merely incorporate the new estimate in any related accounting determinations from that point on. Suppose in our illustration that in 2007 actual returns from 2006 sales are \$40,000, instead of \$30,000. If that happens, the allowance account will have a \$10,000 balance and the over-allowance will have a \$10,000 balance. These balances can be used to record actual returns in 2007 from 2006 sales. As a result, the 2007 adjusting entry to record estimated returns would be \$10,000 (\$40,000 in cost of goods sold/inventory) less than if the 2006 estimate had been correct. Similarly, if actual returns are \$20,000, the 2007 adjusting entry will be \$10,000 less than if the 2006 estimate had been correct.

How do companies estimate returns? Principally they rely on past history, taking into account any changes that might affect future experience. For example, changes in customer payment terms offered to customers, and overall economic conditions might suggest that future returns will differ from past returns. The task of estimating returns is made easier for many large retail companies where a year-end audit is conducted in January. Since retailers usually generate a large volume of net actual sales during the Christmas season, most returns from these sales would already have been accounted for by the end of January.

If the estimate of future sales returns is too high, the company should adjust the allowance for sales returns account to the correct amount. If the estimate is too low, the company should adjust the allowance for sales returns account to the correct amount.

Explain a guide to the company's sales returns. The company should consider the current market conditions.

Metro-Goldwyn-Mayer Inc. (MGM) is engaged in the production and distribution of motion picture and television programs and experiences returns in the home video market. Graphic 7-3 describes the company's approach to estimating returns.

GRAPHIC 7-3

Disclosure of Sales Returns Policy-Metro-Goldwyn-Mayer, Inc.

Summary of Significant Accounting Policies (in part)

Sales Returns

In the home video market, the Company's customers are primarily individuals who purchase motion picture and television programs. The Company's sales are made on a "pay or return" basis. The Company's policy is to estimate the amount of sales returns based on the Company's historical experience. The Company's policy is to estimate the amount of sales returns based on the Company's historical experience. The Company's policy is to estimate the amount of sales returns based on the Company's historical experience.

It also is possible that sales returns will be higher than expected. The Company's policy is to estimate the amount of sales returns based on the Company's historical experience.

In some industries, returns typically are small and infrequent. Companies in these industries usually simply record returns in the period they occur because the effect on income measurement and asset valuation is unimportant. In a few situations, significant uncertainty as to future collections is created by the right of return. In those cases, revenue recognition is deferred until the uncertainty is resolved. We discussed this possibility in Chapter 5.

LO5

Uncollectible Accounts Receivable. Companies that extend credit to customers know that it's unlikely that all customers will fully pay their accounts. Bad debt expense is an inherent cost of granting credit. It's an operating expense incurred to boost sales. As a result, even when specific customer accounts haven't been proven uncollectible by the end of the reporting period, the expense properly should be matched with sales revenue in the income statement for that period.⁷ Likewise, as it is not expected that all accounts receivable will be collected, the balance sheet should report only the expected net realizable value of the asset; that is, the amount of cash the company expects to actually collect from customers. Against nature is therefore needed to record bad debt expense and the related reduction of accounts receivable. In an adjusting entry, we record bad debt expense and reduce accounts receivable indirectly by crediting a contra account—allowance for uncollectible accounts—to accounts receivable for an estimate of the amount that eventually will prove uncollectible. This approach to accounting for bad debts is known as the allowance method.

LO6

There are two ways commonly used to arrive at this estimate of future bad debts—the income statement approach and the balance sheet approach. Illustration 7-3 is used to illustrate both approaches. As you proceed through the illustrations, remember that the two approaches represent alternative ways to estimate the amount of future bad debts. Except for the amounts, the accounting entries are identical.

ILLUSTRATION 7-3

Bad Debts

The Hawthorne Manufacturing Company sells its products offering 30 days' credit to its customers. During 2006—the first year of operations—the following events occurred:

| | |
|--|-------------|
| Sales on credit | \$1,200,000 |
| Cash collections from credit customers | 180,000 |
| Accounts receivable, end of year | \$ 80,000 |

There were no specific accounts determined to be uncollectible in 2006—the company anticipates that 2% of all credit sales will eventually become uncollectible.

Bad debt expense is calculated as a percentage of credit sales.

Income statement approach. Using the income statement approach, we estimate bad debt expense as a percentage of each period's net credit sales. This percentage usually is determined by reviewing the company's recent history of the relationship between credit sales and actual bad debts. For a relatively new company, this percentage may be obtained by referring to other sources such as industry averages.

Using the income statement approach, the bad debt expense for 2006 is \$24,000.

Under the income statement approach, the Hawthorne Manufacturing Company would make the following adjusting journal entry at the end of 2006:

| | | |
|--------------------------------------|--------|--------|
| Bad debt expense 2% (\$1,200,000) | 24,000 | |
| Allowance for uncollectible accounts | | 24,000 |

Allowance for uncollectible accounts is a contra account to accounts receivable. In the current asset section of the 2006 balance sheet, accounts receivable would be reported net of the allowance, as follows:

| | |
|--|------------------|
| Accounts receivable | \$305,000 |
| Less: Allowance for uncollectible accounts | (24,000) |
| Net accounts receivable | <u>\$281,000</u> |

Quite often, companies report the allowance for uncollectible accounts (sometimes called *allowance for doubtful accounts*) parenthetically or along with the accounts receivable accounts as required by a debt or a contract. For example, FedEx Corporation reported the following under current assets in its comparative balance sheets for 2004 and 2003:

| | (\$ in millions) | |
|--|------------------|--------|
| | 2004 | 2003 |
| Receivables—less allowances of \$151 and \$149 | 54,027 | 52,627 |

The \$3,027 million figure at the end of 2004 is the company's estimate of the net realizable value of accounts receivable. Actual (gross) accounts receivable at the end of 2004 were \$57,054 million (\$54,027 million + \$3,027 million).

It is important to notice that the income statement approach focuses on the current year's trade sales. The effect on the balance sheet—the allowance for uncollectible accounts and hence net accounts receivable—is an incidental result of estimating the expense. An alternative is to focus on the balance sheet amounts instead. We look at this approach next.

Balance sheet approach Using the balance sheet approach, it is easier to see how bad debt expense is determined. Bad debt expense is estimated by examining the net realizable value of accounts receivable as reported in the balance sheet. In other words, the allowance for uncollectible accounts is determined. Bad debt expense is an indirect estimate of adjusting the allowance account in the current balance sheet.

For example, Hawthorne Manufacturing Company (Example Illustration 7-3), the company would estimate the amount of uncollectible accounts that will result from the \$305,000 in accounts receivable outstanding at the end of 2006. This could be done by analyzing each customer account, by applying a percentage to the entire outstanding receivable balance, or by applying different percentages to accounts receivable balances depending on the length of time outstanding. This latter approach normally employs an accounts receivable aging schedule. For example, the aging schedule for Hawthorne's year-end accounts receivable is shown in Illustration 7-3A.

FINANCIAL REPORTING CASE

Q2, p. 305

FedEx Corporation

Using the income statement approach, the balance sheet amount is an indirect estimate of estimating bad debt expense.

Using the balance sheet approach, bad debt expense is an indirect estimate of estimating bad debt expense.

ETHICAL DILEMMA

The management of the Auto Parts Division of the Santana Corporation receives a bonus if the division's income achieves a specific target. For 2006 the target will be achieved by a wide margin. Mary Beth Williams, the controller of the division, has been asked by Philip Stanton, the head of the division's management team, to try to reduce this year's income and "bank" some of the profits for future years. Mary Beth suggests that the division's bad debt expense as a percentage of net credit sales for 2006 be increased from 3% to 5%. She believes that 3% is the more accurate estimate but knows that both the corporation's internal auditors as well as the external auditors allow some flexibility when estimates are involved. Does Mary Beth's proposal present an ethical dilemma?

ILLUSTRATION 7-34

Audiencia: Rescindible
 Alinea: Sección 1

| Illustration 7-3A | | Accounts Receivable Aging Schedule | | | | |
|-----------------------|---------------------------------|------------------------------------|---------------|----------------|------------------|--|
| Customer | Accounts Receivable
12/31/08 | 0-60
Days | 61-90
Days | 91-120
Days | Over 120
Days | |
| Ace Manufacturing Co. | \$ 20,000 | \$ 4,000 | \$ 6,000 | | | |
| Banner Corporation | 33,000 | | 20,000 | \$10,000 | \$ 3,000 | |
| Dando Company | 60,000 | 50,000 | 10,000 | | | |
| Wicon Company | 70,000 | 10,000 | 4,000 | 3,000 | 000 | |
| Totals | \$183,000 | \$64,000 | \$40,000 | \$13,000 | \$ 3,000 | |

הנהגות אלו הן חלק מהמאמץ
הכולל של משרד החינוך
לשפר את איכות החינוך
במסגרת תוכנית הלימודים.

Summary

| Age Group | Amount | Estimated Percent Uncollectible | Estimated Allowance |
|--------------------------------------|-----------|---------------------------------|---------------------|
| 1-60 days | \$220,000 | 5% | \$11,000 |
| 61-90 days | 50,000 | 5% | 5,000 |
| 91-120 days | 25,000 | 20% | 5,000 |
| Over 120 days | 10,000 | 45% | 4,500 |
| Allowance for uncollectible accounts | | | \$25,500 |

• Higher in demand
• Not a "hot" job
• Positioned in a special
of our organization

The schedule lists the year-end receivable balances according to their length of time outstanding. Presumably the longer an account has been outstanding, the more likely it will prove uncollectible. However, in past years, the use of the schedule as a factor in determining a percentage is applied to all given years.

The 2006 entry to record bad debts adjusts the balance in the allowance for uncollectible accounts to the required amount of \$2,900. Because it is the first year of operations in Hawthorne and the beginning balance in the allowance account is zero, the adjusting entry would debit bad debt expense and credit allowance for uncollectible accounts for \$2,900.

To illustrate the concept further, let's suppose that this was not the final year of operations and the allowance account prior to the adjusting entry had a credit balance of \$4,000. Then the amount of the entry would be \$21,400—the amount necessary to adjust a credit balance of \$4,000 to a credit balance of \$25,400. Similarly, if the allowance account prior to the adjusting entry had a debit balance of \$4,000, then the amount of the entry would be \$29,400.

Some companies use a combination of approaches in estimating bad debts. For example, Hawthorne could decide to accrue bad debts on a monthly basis using the income statement approach and then employ the balance sheet approach at the end of the year based on an aging of receivables. Each month an adjusting entry would record a debit to bad debt expense and a credit to allowance for uncollectible accounts equal to 2% of credit sales. In our illustration, the monthly accruals for 2006 would result in the following account balances at the end of 2006.

| | | | | | | | | | |
|---|---|--|---------|--|---|------------------|--|--------|--|
| <table border="0"> <tr> <td style="text-align: right;">Accounts Receivable</td> <td style="border-bottom: 1px solid black; width: 100px;"></td> </tr> <tr> <td style="text-align: right;">305,000</td> <td style="border-left: 1px solid black; border-bottom: 1px solid black;"></td> </tr> </table> | Accounts Receivable | | 305,000 | | <table border="0"> <tr> <td style="text-align: left;">Bad Debt Expense</td> <td style="border-bottom: 1px solid black; width: 100px;"></td> </tr> <tr> <td style="text-align: left;">24,000</td> <td style="border-left: 1px solid black; border-bottom: 1px solid black;"></td> </tr> </table> | Bad Debt Expense | | 24,000 | |
| Accounts Receivable | | | | | | | | | |
| 305,000 | | | | | | | | | |
| Bad Debt Expense | | | | | | | | | |
| 24,000 | | | | | | | | | |
| <table border="0"> <tr> <td style="text-align: right;">Allowance for
Uncollectible Accounts</td> <td style="border-bottom: 1px solid black; width: 100px;"></td> </tr> <tr> <td style="text-align: right;">24,000</td> <td style="border-left: 1px solid black; border-bottom: 1px solid black;"></td> </tr> </table> | Allowance for
Uncollectible Accounts | | 24,000 | | | | | | |
| Allowance for
Uncollectible Accounts | | | | | | | | | |
| 24,000 | | | | | | | | | |

"A. John B. Galt, Chief Counsel of the American National Rifle Association, will represent all defendants before setting the formal charges. The Department of Justice, in the interim, will act as prosecutor."

At the end of the year, if the aging revealed a required allowance of \$25,500, the following adjusting entry would be recorded:

| | | |
|--------------------------------------|--------|--------|
| Bad debt expense | 25,500 | |
| Allowance for uncollectible accounts | | 25,500 |

This entry adjusts the allowance account to the required amount.

In the 2006 balance sheet, accounts receivable would be reported net of the allowance, as follows:

| | |
|--|------------------|
| Accounts receivable | \$305,000 |
| Less: Allowance for uncollectible accounts | (25,500) |
| Net accounts receivable | <u>\$279,500</u> |

When accounts are deemed uncollectible. The actual write-off of a receivable occurs when it is determined that all or a portion of the amount due will not be collected. Using the allowance method, the write-off is recorded as a debit to allowance for uncollectible accounts and a credit to accounts receivable. In our illustration, assume that actual bad debts in 2007 are \$25,000. These write-offs would be recorded in a summary journal entry as follows:

| | | |
|--------------------------------------|--------|--------|
| Allowance for uncollectible accounts | 25,000 | |
| Accounts receivable | | 25,000 |

Net realizable value is not affected directly by the write-offs.

| | |
|--|------------------|
| Accounts receivable | \$280,000 |
| Less: Allowance for uncollectible accounts | (500) |
| Net accounts receivable | <u>\$279,500</u> |

The write-off of an account receivable reduces an asset, but the offsetting entry is a credit to accounts receivable, and the offsetting entry is having an offsetting increase in financial position.

Of course, actual bad debts will tend to differ from estimates. However, the year in which the estimate is made, 2006 in this case, is unaffected by the incorrect estimate. If the prior year estimate of bad debts is too low, then, using the balance sheet approach, bad debt expense in the subsequent year will be increased. If the estimate is too high, then bad debt expense in the subsequent year will be decreased. For example, in our illustration, the estimate at the end of 2006 is \$25,500. Actual bad debts related to 2006 receivables are \$25,000. 2006's financial information cannot be changed. Instead, the \$500 credit balance in allowance for uncollectible accounts will cause 2007's bad debt expense to be less than if 2006's estimate of bad debts had been correct.

When previously written-off accounts are collected. Occasionally, a receivable that has been written off will be collected in part or in full. When this happens, the receivable (and its offsetting allowance) should be reinstated. In other words, the entry to write off the account simply is reversed. The collection is then recorded the usual way—a debit to cash and a credit to accounts receivable. This process ensures that the company will have a complete record of the payment history of the customer. For example, assume that in our illustration, \$ 200 that was previously written off is collected. The following journal entries record the event:

| | | |
|--------------------------------------|-----|-----|
| Accounts receivable | 200 | |
| Allowance for uncollectible accounts | | 200 |
| Cash | 200 | |
| Accounts receivable | | 200 |

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Direct write-off of uncollectible accounts. If uncollectible accounts are not anticipated or are immaterial, or if it's not possible to reliably estimate uncollectible accounts, an allowance for uncollectible accounts is not appropriate. In these few cases, adjusting entries are not recorded and any bad debts that do arise simply are written off as bad debt expense. An uncollectible account would be recorded as follows:

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

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Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

Reinstatement of accounts receivable does not require the company to estimate the allowance for uncollectible accounts.

10. (1)

and from the balances in accounts receivable and a few other uncollectible accounts at the end of 2007.

Determine bad debt expense for 2007.

- 5 Prepare journal entries for the monthly accrual of bad debts (in summary form), the write-off of receivables, and the year-end adjusting entry for bad debts.

Determine the balance of accounts receivable and allowance for uncollectible accounts at the end of 2007.

Section 7.4

| | |
|--|-------------|
| Accounts receivable | |
| Beginning balance | \$ 305,000 |
| Add: Credit sales | 300,000 |
| Less: Cash collections | (1,250,000) |
| Write-offs | 25,000 |
| Ending balance | \$ 330,000 |
| Allowance for uncollectible accounts | |
| Beginning balance | \$ 25,500 |
| Add: Bad debt expense recorded monthly
(2% x \$1,300,000) | 26,000 |
| Less: Write-offs | 25,000 |
| Balance before year-end adjustment | 26,500 |
| Year-end adjustment | 3,500 |
| Ending balance | \$ 30,000 |

*Required allowance of \$30,000 less \$26,500 already in allowance account.

Year-end bad debt expense for 2007:

Bad debt expense would be \$29,500 (monthly accrual of \$26,000 plus year-end adjustment of an additional \$3,500).

5 Journal entries for the monthly accrual of bad debts (in summary form), the write-off of receivables, and the year-end adjusting entry for bad debts:

| | | |
|---|--------|--------|
| Bad debt expense (2% x \$1,300,000) | 26,000 | |
| a. Allowance for uncollectible accounts | | 26,000 |
| Monthly write-off of uncollectible accounts—summary entry | | |
| Allowance for uncollectible accounts | 25,000 | |
| a. Accounts receivable | | 25,000 |
| Year-end adjustment as they are determined uncollectible | | |
| Bad debt expense | 3,500 | |
| a. Allowance for uncollectible accounts | | 3,500 |

Notes Receivable

Notes receivable are formal credit arrangements between a creditor—lender—and a debtor—borrower. Notes arise from sales of merchandise, services, and to affiliates, companies, and to individuals and employees. From the extension of the credit period to trade customers, and occasionally from the sale of merchandise, other assets, or services. Notes receivable are classified either current or noncurrent, depending on the agreed payment dates.

Examples below illustrate short-term notes. When the term of a note is longer than a year, it is classified as a long-term note. Long-term notes receivable are discussed in Chapter 10 with long-term notes payable in § 13, April 14.

107 INTEREST-BEARING NOTES

The typical note receivable requires the payment of a specified face amount, also called *principal*, at a specified maturity date or dates. In addition, interest is paid at a stated percentage of the face amount. Interest on notes is calculated as

$$\text{Face amount} \times \text{Annual rate} \times \text{Fraction of the annual period}$$

For an example, consider Illustration 7-4.

ILLUSTRATION 7-4 Note Receivable

The Sindewell Wholesale Shoe Company manufactures athletic shoes that it sells to retailers. In May 2006, the company sold shoes to Henson Sporting Goods. Sindewell agreed to a contract for the shoes. Interest is payable at maturity as follows.*

| | | |
|---|---------|---------|
| May 1, 2006 | | |
| Note receivable | 700,000 | |
| Cash | | 700,000 |
| To record the sale of goods in exchange for a note receivable | | |
| November 1, 2006 | | |
| Cash (\$700,000 × 12% × 6/12) | 742,000 | |
| Interest revenue (\$700,000 × 12%) | | 42,000 |
| Note receivable | | 700,000 |
| To record the collection of the note at maturity. | | |

*To focus on recording the note we intentionally omit the entry required for the cost of the goods sold if the perpetual inventory system is used.

If the sale in the illustration occurs in August 2006 and the company's fiscal year-end is December 31, a year-end adjusting entry accrues interest earned.

| | | |
|-----------------------------------|--------|--------|
| December 31, 2006 | | |
| Interest receivable | 15,000 | |
| Interest revenue (\$700,000 × 2%) | | 15,000 |

The February 1 entry would then be entered as follows:

| | | |
|--|---------|---------|
| February 1, 2007 | | |
| Cash (\$700,000 × 12% × 2/12) | 742,000 | |
| Interest revenue (\$700,000 × 2%) | | 12,000 |
| Interest receivable (accrued at December 31) | | 15,000 |
| Note receivable | | 700,000 |

NONINTEREST-BEARING NOTES

Sometimes a receivable assumes the form of a so-called *noninterest-bearing note*. This name is a misnomer, though. Noninterest-bearing notes actually do bear interest, but the interest is deducted (or discounted) from the face amount in determining the cash proceeds first available to the borrower at the outset. For example, the preceding note could be purchased as a \$700,000 noninterest-bearing note with a 2% discount rate. In that case, the 3% interest would be discounted at the outset rather than explicitly stated. As a result, the selling price of the shoes would have been only \$658,000. Assuming a May 1, 2006 sale, the February 1 entry would be as follows:

| | | |
|--|---------|---------|
| In this example, the note is recorded by the seller at the net selling price, and the interest is added back to the face amount at the date of collection. | | |
| May 1, 2006 | | |
| Note receivable | 658,000 | |
| Cash | | 658,000 |
| November 1, 2006 | | |
| Cash (\$658,000 × 12% × 6/12) | 742,000 | |
| Interest revenue (\$658,000 × 12%) | | 48,480 |
| Note receivable (\$700,000 × 2%) | | 14,000 |

May 1, 2006

| | | |
|---|---------|---------|
| Notes receivable (face amount) | 700,000 | |
| Discount on notes receivable (3,000,000 × 12% × 2/12) | | 40,000 |
| Sales revenue difference | | 660,000 |

November 1, 2006

| | | |
|-------------------------------|--------|---------|
| Account to note receivable | 40,000 | |
| Interest revenue | | 40,000 |
| Net | 00,000 | |
| Note receivable (face amount) | | 700,000 |

The discount on note receivable is a contra account to the note receivable account. That is, the note receivable will not be reported in the balance sheet net less any remaining discount. The discount represents future interest revenue that will be recognized as it is earned in future periods. The sales revenue under this arrangement is only \$660,000, and the interest is calculated as the discount—40,000 times the 3,000,000 face amount. This causes the effective interest rate to be higher than the 12% stated rate.

The discount represents interest revenue that will be earned in future periods.

When interest is calculated on the face amount of the note, the effective interest rate is higher than the stated rate.

| | |
|-----------|-------------------------|
| \$ 40,000 | Interest for 6 months |
| \$660,000 | Sales price |
| 6.36% | Rate for 6 months |
| × 2 | To annualize the rate |
| 12.76% | Effective interest rate |

(For 6-month periods)

If the sale occurs on August 1, the December 31, 2006, adjusting entry and the entry to record the cash collection on February 1, 2007, are recorded as follows:

December 31, 2006

| | | |
|---|--------|--------|
| Adjust to note receivable | 35,000 | |
| Interest revenue (3,000,000 × 12% × 1/12) | | 35,000 |

February 1, 2007

| | | |
|---|--------|---------|
| Discount on note receivable | 7,000 | |
| Interest revenue (3,000,000 × 12% × 1/12) | | 7,000 |
| Net | 00,000 | |
| Note receivable (face amount) | | 700,000 |

In the December 31, 2006, balance sheet, the note receivable is shown at \$665,000, (face of \$700,000 less remaining discount, \$35,000).

Goldwyn-Mayer Inc., (GMI) licenses its television programs to networks. The company's note shown in Graphic 7-5 describes the company's revenue recognition policy for license agreements and the use of noninterest-bearing notes.

Revenue Recognition (in part)

Revenue is recognized when the license agreement is signed. When the license agreement is signed, the company is entitled to the revenue. The license agreement is signed when the company is entitled to the revenue. The license agreement is signed when the company is entitled to the revenue. The license agreement is signed when the company is entitled to the revenue.

GRAPHIC 7-5

Disclosure of Revenue Recognition for License Agreements—Excerpt from Goldwyn-Mayer Inc.

Notes Received Solely for Cash. If a note with an unrealistic interest rate—even a noninterest-bearing note—is received solely in exchange for cash, the cash paid to the issuer is considered to be its present value.¹¹ Even if this means recording interest at a ridiculously

When a noninterest-bearing note is received solely in exchange for cash, the cash paid to the issuer is considered to be its present value.

¹¹ For example, if a company receives a note with a face amount of \$100,000 and a stated interest rate of 0%, the company should record the cash received at the present value of the note. The present value of the note is determined by discounting the face amount of the note at the market interest rate. If the market interest rate is 12%, the present value of the note is \$89,000. The company should record the cash received at \$89,000 and the difference of \$11,000 as interest revenue.

now or zero rate, the amount of cash exchanged is the basis for valuing the note. When a new cash asset is exchanged for a note with a low stated rate, we can argue that its real value is less than it's purported to be, but we can also argue that the present value of a sum of cash currently exchanged is less than that sum. If the noninterest-bearing note in the previous example had been received solely in exchange for \$700,000 cash, the transaction would be recorded as follows:

| | | |
|-------------------------------|---------|---------|
| Note receivable (face amount) | 700,000 | |
| Cash given | | 700,000 |

SUBSEQUENT VALUATION OF NOTES RECEIVABLE

Similar to accounts receivable, if a company anticipates bad debts on short-term notes receivable, it uses an allowance account to reduce the receivable to net realizable value. The process of recording bad debt expense is the same as with accounts receivable.

Long-term notes present a more significant measurement problem. The longer the duration of the note, the more likely are bad debts. One of the more difficult measurement problems facing banks and other lending institutions is the estimation of bad debts on their long-term notes (loans). As an example, Wells Fargo & Company, a large bank holding company, reported the following in the asset section of a recent balance sheet:

| | December 31 ^a
(in millions) | |
|---------------------------|---|-----------|
| | 2004 | 2003 |
| Loans | \$287,586 | \$253,073 |
| Allowance for loan losses | (3,762) | (3,891) |
| Net loans | \$283,824 | \$249,182 |

A disclosure note, reproduced in Graphic 7-6, describes Wells Fargo's loan loss policy.

GRAPHIC 7-6

Disclosure of
Allowance for Loan
Losses—Wells Fargo &
Company

Allowance for Loan Losses

The allowance for loan losses is a contra-asset account that represents an estimate of credit losses inherent in the loan portfolio as of the balance sheet date. Our determination of the allowance for loan losses is based on judgments and assumptions regarding the credit quality of the loan portfolio. The allowance for loan losses is determined by management based on the results of the periodic review of the loan portfolio. The allowance for loan losses is determined by management based on the results of the periodic review of the loan portfolio. The allowance for loan losses is determined by management based on the results of the periodic review of the loan portfolio.

When it becomes probable that a creditor will be unable to collect all amounts due according to the contractual terms of a note, the receivable is considered impaired. When a creditor's investment in a note receivable becomes impaired for any reason, the receivable is measured as the discounted present value of currently expected cash flows at the note's original effective rate. Impairments of receivables are discussed in Appendix 2B.

Financing with Receivables

- **LO 2** Receivables, like any other asset, can be sold or used as collateral for debt. In fact, many companies avoid the difficulties of servicing (billing and collecting) receivables by selling them to financial institutions. This practice also shortens those companies' operating cycles by providing cash to the companies immediately rather than having them wait until credit customers pay the amounts due. Of course, the financial institution will require compensation for providing this service, usually interest and/or a finance charge.

Responding to these desires, financial institutions have developed a wide variety of ways for companies to use their receivables to obtain immediate cash. The methods differ with re-

open to which rights and risks are retained by the *transferor* (the original holder of the receivables) and how passed on to the *transferee* (the new holder, the financial institution) apply. In this diversity, any of these methods can be described as either:

1. A secured borrowing.
2. A sale of receivables.

When a company chooses between a borrowing or a sale, the critical element is the extent to which the transferor is willing to *surrender control over the assets transferred*. The criterion for some arrangements is not always obvious. For such situations the FASB has issued guidelines. Specifically, the transferor is determined to have surrendered control over the receivables if and only if all of the following conditions are met:¹²

- a. The transferred assets have been isolated from the transferor—put presumptively beyond the reach of the transferor and its creditors, even in bankruptcy or other reorganization.
- b. Each transferee has the right to pledge or exchange the assets received.
- c. The transferor does not retain an effective control over the transferred assets through either (1) an agreement that the transferor repurchase or redeem them before their maturity or (2) the ability to cause the transferee to return specific assets.

If all of the above conditions are met, the transferor treats the transaction as a *secured borrowing*. In that case the company records a liability with the receivables serving as collateral.

In the other hand, if each of the three conditions is met, the transferor treats the transaction as a *sale* into accounts for it in the same manner as the sale of any other asset. That is, the firm “derecognizes” (removes) the receivables from its books, records the proceeds received, and recognizes the difference as net gain or loss (usual or less usual). On the other side of the transaction, the transferee recognizes the receivables obtained as an asset at the fair value less any costs of purchase (if any) here we will look.

If the transferor is deemed to have surrendered control over the receivables, the transaction is recorded as a secured borrowing.

SECURED BORROWING

As noted in the previous section, companies sometimes use receivables as collateral for a loan. You may already be familiar with the concept of assigning or pledging receivables as collateral. If you or someone you know has a mortgage on a home, the bank or other financial institution holding the mortgage will require that, if the homeowner defaults on the mortgage payments, the house be sold and the proceeds used to pay off the mortgage debt. Similarly, in the case of an assignment of receivables, nonpayment of a debt will require the assignee firm collecting the assigned receivables to go directly toward repayment of the debt.

Well, the amount borrowed is less than the amount of receivables assigned. The difference provides some protection for the lender to allow for possible uncollectible accounts.

The secured transferee usually charges the assignor (or firm) finance charge in addition to the interest on the collateralized loan. The receivables might be converted either to cash or to a note or to a note depending on the terms of the arrangement. Question 2 is a sample of a multiple.

Problem 10 on a December 31, 2006, balance sheet, the company would report the receivables and note payable to the bank as follows:

Current assets:

| | | | |
|--|-----------|---------|-----------|
| Accounts receivable assigned | \$620,000 | 400,000 | \$220,000 |
| Less liability—financing arrangement | \$500,000 | 100,000 | |
| Equity of accounts receivable assigned | | | \$120,000 |

12. In *Transfer of Receivables*, FASB is consistent with the *Statement of Financial Accounting Standards* (SFAS) 109, the *Accounting for Assets* (1992).

ILLUSTRATION 7-3 Assignment of Accounts Receivable

At the end of November 2004, Santa Teresa Glass Company had outstanding accounts receivable of \$250,000. On December 1, the company borrowed \$250,000 from Finance Affiliates and signed a promissory note that is payable monthly. The company assigned \$420,000 of accounts receivable to Finance Affiliates as collateral on the loan. Finance Affiliates charged a finance fee equal to 5% of the accounts receivable assigned. Santa Teresa also records the borrowing as follows:

| | | |
|--|---------|---------|
| Cash difference | 490,000 | |
| Finance charge expense: $5\% \times \$250,000$ | 9,000 | |
| Liability—Financing arrangement | | 500,000 |

Santa Teresa will continue to collect receivables, record any discounts, sales returns, and so on if warranted, but will remit the cash to Finance Affiliates usually on a monthly basis. When \$420,000 of the receivables assigned are collected in December, Santa Teresa Glass records the following entries:

| | | |
|---|---------|---------|
| Cash | 400,000 | |
| Accounts receivable | | 420,000 |
| Interest expense: $500,000 \times 12\% \times \frac{1}{12}$ | 5,000 | |
| Liability—Financing arrangement | 400,000 | |
| Cash | | 405,000 |

In theory, this fee should be allocated over the entire period of the loan rather than recorded as an expense in the initial period. However, amounts usually are small and the loan period usually is short. For expediency, then, this expense is recorded immediately.

Netting a liability against a related asset usually is not allowed by GAAP. However, in this case, we deduct the note payable from the accounts receivable assigned because, by contractual agreement, the note will be paid with cash collected from the receivables. In Santa Teresa's financial statements, the arrangement also is described in a disclosure note.

A variation in assigning specific receivables occurs when trade receivables in general, rather than specific receivables, are pledged as collateral. The responsibility for collection of the receivables remains solely with the company. This variation is referred to as a *pledging* of accounts receivable. No special accounting treatment is needed and the arrangement simply described in a disclosure note. For example, Graphic 7-7 shows a portion of the long-term debt disclosure note included in recent financial statements of **Lyondell Chemical Company**, a global chemical company.

Graphic 7-7

Disclosure of
Receivables Used as
Collateral—Lyondell
Chemical Company

Long-Term Debt (in part)
A note on the interest rate index is the inventory-based revolving credit facility was established in 2004. The new revolving credit facility was established as a lien on all inventory and certain personal property including equipment, fixtures and other assets.

Two popular
arrangements for
financing receivables
are factoring and
securitization.

SALE OF RECEIVABLES

In recent years, the sale of accounts receivable has become an increasingly popular method of financing. Traditionally a technique used by companies in a few industries or with poor credit ratings, the sale of receivables is now a common occurrence for many different types of companies. For example, Delta Air Lines, Phillips Petroleum, Unocal, IBM, Sears, and Raytheon all sell receivables. The two most common types of selling arrangements are *factoring* and *securitization*. We'll now discuss each type.

A *factor* is a financial institution that buys receivables for cash, handles the billing and collection of the receivables, and charges a fee for this service. Actually, credit cards like Visa and Mastercard are forms of factoring arrangements. The seller relinquishes all rights to the future cash receipts in exchange for cash from the buyer (the factor).

As an example, Graphic 7-8 shows an excerpt from a recent advertisement of Banker-Mutual Capital Corporation, a financial institution that offers factoring as one of its services.

Accounts Receivable Factoring

Accounts receivable factoring is the selling of your invoices within 30 to 60 days of being paid by your customers. The receivable is sold to the factor, usually a finance company, and the factor pays you the sale price less a fee.

Accounts receivable factoring will get you the working capital you need to keep your business running smoothly. Since the factor

GRAPHIC 7-8

Advertisement of Factoring Service: Bankers Mutual Capital Corporation

keeps that the factor, Bankers Mutual, advances only between 65%–80% of the factored receivable. The remaining balance is retained as security until all of the receivables are collected and then remitted to the transferee less of the factor's fee. The fee charged by the factor ranges from 3%–6%. The range depends on, among other things, the quality of the receivables and the length of time before payment is required.

Another popular arrangement used to sell receivables is a securitization. In a typical securitization, the company creates a special purpose entity (SPE), usually a trust or a subsidiary. The SPE buys a pool of trade receivables, credit card receivables, or other receivables from the company and then sells related securities, for example bonds or commercial paper, that are backed (collateralized) by the receivables.

As an example of a securitization, Graphic 7-9 shows a portion of the disclosure note in the recent financial statements of Sears, Roebuck and Co. describing its securitization of credit card receivables.

Note 7—Summary of Significant Accounting Policies (in part)

Selling for Credit Card Securitizations

Our credit card receivables are sold to a trust, which then sells them to investors. The trust is a separate legal entity, but its assets consist of our credit card receivables. The trust is not a subsidiary of our company. The trust is not a variable interest entity (VIE) under the provisions of the FASB's Statement of Financial Accounting Standards (SFAS) 133. The trust is not a VIE because it does not have the power to absorb the risks and rewards of the credit card receivables. The trust is not a VIE because it does not have the power to absorb the risks and rewards of the credit card receivables. The trust is not a VIE because it does not have the power to absorb the risks and rewards of the credit card receivables.

GRAPHIC 7-9

Disclosure of Credit Card Securitizations: Sears, Roebuck and Co.

The specific accounting treatment for the sale of receivables using factoring and securitization arrangements depends on the amount of risk the factor assumes, in particular whether the receivables are sold **without recourse** or **with recourse**.

Sale without Recourse. When a company sells accounts receivable without recourse, the buyer assumes the risk of uncollectibility. This means the buyer has no recourse to the seller if customers don't pay. In such cases, the seller simply accounts for the transaction as a sale of an asset. As we discussed above, the buyer charges a fee for providing this service, usually a percentage of the book value of receivables. Because the fee reduces the proceeds the seller receives from selling the asset, the seller records a loss on sale of assets. The typical factoring arrangement is made without recourse. Illustration 7-5 provides an example.

Sale with Recourse. When a company sells accounts receivable with recourse, the seller retains the risk of uncollectibility. In effect, the seller guarantees that the buyer will be repaid, even if some receivables prove to be uncollectible. In Illustration 7-6, even if the receivables were sold with recourse, as long as the three conditions for sale treatment are met, Santa Teresa Glass would still account for the transfer as a sale. The only difference would be the additional requirement that Santa Teresa record the estimated fair value of the recourse obligation as a liability. The recourse obligation is the estimated amount that Santa Teresa will have to pay Finance Affiliates as a reimbursement for uncollectible receivables. Assuming that the amount is estimated at \$5,000, the entry is shown by Santa Teresa in Illustration 7-6A.

the buyer assumes the risk of uncollectibility. This means the buyer has no recourse to the seller if customers don't pay. In such cases, the seller simply accounts for the transaction as a sale of an asset.

no effect on the balance sheet. The only effect is on the income statement. The company will record a loss on sale of assets.

On December 31, 2006, the Stridewell Wholesale Shoe Company sold land in exchange for a six-month, 10% note. The note requires the payment of \$200,000 plus interest on September 30, 2007. The company's fiscal year-end is December 31. The 10% rate properly reflects the time value of money for this type of note. On March 31, 2007, Stridewell discounted the note at the Bank of the East. The bank's discount rate is 12%.

Because the note had been outstanding for three months before it's discounted at the bank, Stridewell first records the interest that has accrued prior to being discounted:

March 31, 2007

| | | |
|----------------------------------|-------|-------|
| Notes receivable | 5,000 | |
| Interest revenue (3 months, 10%) | | 5,000 |

Next, the value of the note if held to maturity is calculated. Then the discount for the time remaining to maturity is deducted to determine the cash proceeds from discounting the note.

| | |
|-----------|---|
| \$200,000 | Face amount |
| 5,000 | Interest to maturity (\$200,000 × 10% × 3/12) |
| \$205,000 | Maturity value |
| (12,900) | Discount (\$205,000 × 12% × 3/12) |
| \$192,100 | Cash proceeds |

| | | |
|---|--|---------|
| Net gain (loss) from interest discount | | 2,900 |
| (Gain on sale of note receivable (difference)) | | 200,000 |
| Note receivable (and interest) | | 5,000 |
| Interest receivable (accrued interest determined above) | | |

Illustration 7-7

Discounting a Note Receivable

STEP 1: Accrue interest on the note receivable prior to discounting.

STEP 2: Add interest to maturity to calculate maturity value.

STEP 3: Deduct discount for time remaining to maturity.

Illustration 7-7A

Discounted Note Treated as a Sale

Record a loss (or gain) to determine the net cash proceeds and the net book value.

CONCEPT REVIEW EXERCISE

The Hollywood Lumber Company obtains financing from the Midwest Finance Company to borrow for discounting its receivables. During June 2006, the company factored \$1,000,000 of accounts receivable to Midwest. The transfer was made *without* recourse. The Midwest Finance Company retains 20% of the factored receivables and retains 20%. When the receivables are collected by Midwest, the retained amount, less a 3% fee (3% of the total factored amount), will be remitted to Hollywood Lumber.

In addition, on June 30, 2006, Hollywood discounted a note receivable without recourse. The note, which originated on March 31, 2006, requires the payment of \$150,000 plus interest at 8% on March 31, 2007. Midwest's discount rate is 10%. The company's fiscal year ends on December 31.

Required:

Prepare journal entries for Hollywood Lumber for the factoring of accounts receivable and the note receivable discounted on June 30. Assume that the required criteria are met and the transfers are accounted for as sales.

FINANCING WITH RECEIVABLES

SOLUTION

| The Factoring of Receivables | | |
|---|--|-----------|
| Net 10% = \$1,000,000 | | 1,000,000 |
| Less: on sale of receivables (3% × \$1,000,000) | | 30,000 |
| Receivable from factor (20% × \$1,000,000 + 30,000 fee) | | 170,000 |
| Accounts receivable balance sold | | 800,000 |

The Note Receivable Discounted

| | | |
|---|-------|---------|
| Interest receivable | 3,000 | |
| Interest revenue $\$30,000 \times 6\% \times \frac{1}{2}$ | | 3,000 |
| Cash (proceeds determined below) | 5 | |
| Loss on sale of note receivable (difference) | 3,450 | |
| Note receivable (face amount) | | 150,000 |
| Interest receivable (discounted interest—earned above) | | 3,000 |

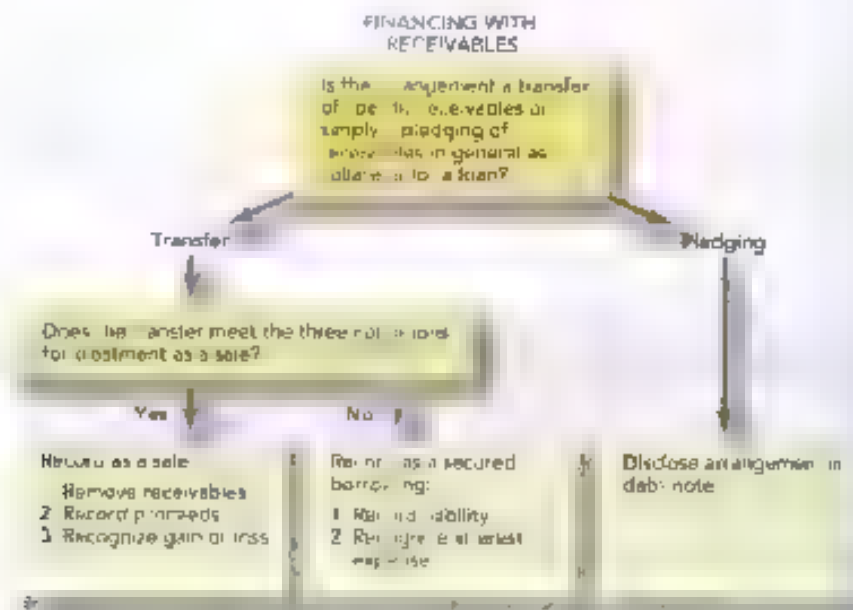
At the time of maturity to calculate monthly payments

Deduct discount to find cash proceeds

| | |
|-----------|--|
| \$50,000 | Face amount |
| 12,000 | Interest to maturity $(\$150,000 \times 8\% \times \frac{1}{2})$ |
| 162,000 | Maturity value |
| (12,150) | Discount $(\$162,000 \times 10\% \times \frac{1}{2})$ |
| \$149,850 | Cash proceeds |

In summary, there are several ways receivables can be used as a method of financing. However, each of these arrangements can be categorized as either a secured borrowing or as an outright sale of the receivables. Graphic 7-10 provides a visual summary of the possibilities.

GRAPHIC 7-10
Accounting for the Financing of Receivables



DECISION MAKERS' PERSPECTIVE

Receivables Management

A company's investment in receivables is influenced by several variables, including the kind of sales, the nature of the product or service sold, and credit and collection policies. These variables are, of course, related. For example, a change in credit policies could affect sales. In fact, more liberal credit policies—allowing customers a longer time to pay or offering cash discounts for early payment—often are initiated with the specific objective of increasing sales volume.

Management's choice of credit and collection policies often involves trade-offs. For example, offering cash discounts may increase sales volume, accelerate customer payment, and

cash and debts. These benefits are not without cost. The cash discounts reduce the amount of cash collected from customers who take advantage of the discounts. Extending payment terms to pay receivables sales volume. However, this creates an increase in the required in-ventories, credit sales and may increase bad debts.

The ability to use receivables as a method of financing also offers management alternative financing. Assigning, factoring, and discounting receivables are alternative methods of financing operations that must be evaluated relative to other financing methods such as lines of credit and other types of short-term borrowing.

Investors, creditors, and financial analysts can gain important insights by monitoring a company's investment in receivables. Chapter 5 introduced the receivables turnover ratio and its related average collection period, ratios designed to monitor receivables. Recall that these ratios are calculated as follows:

$$\text{Receivables turnover ratio} = \frac{\text{Net sales}}{\text{Average accounts receivable (net)}}$$

$$\text{Average collection period} = \frac{365 \text{ days}}{\text{Receivables turnover ratio}}$$

The turnover ratio shows the number of times during a period that the average accounts receivable balance is collected, and the average collection period is an approximation of the number of days the average accounts receivable balance is outstanding.

If a company's sales grow, receivables also will increase. If the percentage increase in receivables is greater than the percentage increase in sales, the receivables turnover ratio will decline (the average collection period will increase). This could indicate customer dissatisfaction with the product or that the company has extended too generous payment terms in order to attract new customers, which, in turn, could decrease sales returns and bad debts.

These ratios also can be used to compare the relative effectiveness of a company in managing the investment in receivables. Of course, it would be meaningless to compare the receivables turnover ratio of a computer products company such as IBM with that of, say, a food product company like Hershey. A company selling high-priced, low-volume products like mainframe computers generally will grant customer longer payment terms than a company selling lower priced, high-volume food products. Graph 7-1 lists the 2004 receivables turnover ratios for some well-known companies. The differences are as expected given the nature of the companies' products.

Graph 7-2 compares the 2004 receivables turnover ratio and the average collection period for two companies in the same industry, Dell and Apple Computers.

GRAPH 7-1 Receivables Turnover Ratios

| Company | 2004 Receivables Turnover Ratio |
|-------------------|---------------------------------|
| IBM | 4.26 |
| Johnson & Johnson | 5.12 |
| Caterpillar | 5.44 |
| Marshall | 7.09 |
| Intel | 7.91 |
| Sara Lee | 10.34 |

(\$ in millions)

| | Dell | | Apple | |
|---------------------------|---------------------------------------|---------------------------------------|---------|------------------|
| | 2004 | 2003 | 2004 | 2003 |
| Accounts receivable (net) | \$3,635 | \$2,586 | \$774 | \$766 |
| Two-year averages | \$ 3.1 | | \$ 770 | |
| Revenues: 2004 | \$41,443 | | \$8,279 | |
| | Dell | | Apple | Industry Average |
| Receivables turnover | $\frac{\$41,443}{\$3,1} = 13.34$ | $\frac{\$2,586}{\$770} = 3.37$ | 0.75 | 2.0 |
| Average collection period | $\frac{365}{13.34} = 27 \text{ days}$ | $\frac{365}{3.37} = 109 \text{ days}$ | 34 days | 48 days |

On average, it takes Apple seven days longer than Dell to collect its receivables. Both companies take less time to collect receivables than the industry average. Academic research also has shown receivables information to be useful in financial statement analysis. Professors Jones and Turgutoglu empirically demonstrated the importance of

At management most

of the financial

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is a key indicator

of the company's

financial health.

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a set of 17 fundamental attributes of company economies and their stock. The set of ratios included accounts receivable (change in accounts receivable minus change in sales) and allowance for uncollectible accounts (change in accounts receivable minus change in the allowance). Motivation for the receivables variable was that disproportionate increases in accounts receivable (relative to sales increases) can indicate difficulties in getting paid, reflecting more lenient credit policies. The allowance variable was expected to indicate inadequate bad debt provisions. Both were found to be significant indicators of stock returns during high inflation years.¹³

Earnings Quality

In May 2001 the Securities and Exchange Commission sued the former top executives of Sunbeam, charging the company with financial reporting fraud that allegedly cost investors billions in losses. In the mid-1990s Sunbeam needed help: its profits had declined significantly as did its stock price, and in 1996, the company reported a loss from continuing operations of \$ 98 million. To the rescue comes Albert Dunlap, also known as "Chainsaw" based on his reputation as a ruthless executive known for his ability to restructure and turnaround troubled companies, largely by eliminating jobs.

The strategy appeared to work. In 1997, Sunbeam's revenues had risen by 18% and profits were back in the black with income from continuing operations of \$123 million for the year. However, in April 1998, PaineWebber Inc. downgraded Sunbeam's stock, recommending a sell. Why the downgrade? PaineWebber had noticed unusually high accounts receivable, sharp increases in sales of electric blankets in the third quarter 1997, which usually sell best in the fourth quarter, as well as unusually high sales of barbecue grills for the fourth quarter. So after, Sunbeam announced a first quarter loss of \$44.6 million, and Sunbeam's stock price fell.¹⁴

It eventually came to light that Dunlap and Sunbeam had been using a "bill and hold" strategy with retail buyers. This involved selling products at large discounts to retailers for they normally would buy and then holding the products in third-party warehouses, a delivery at a later date. According to an article in *Barron's*, much of the variation in Sunbeam's income from 1996 to 1997 reflected a discretionary use of accruals to accelerate expenses to 1996.¹⁵

Bad debt expense, and the corresponding allowance for uncollectible accounts, is one of several so-called discretionary accruals that directly impact a company's income. Other discretionary accruals include warranty expenses, discretionary compensation expenses such as bonuses, sales returns, and restructuring costs. Each of these accruals requires estimates of future events, thus providing management the opportunity to shift income among reporting periods. For example, if management overestimates bad debt expense in one period, a company will report lower profit that period and higher profit in a later period.

Recall our discussion in Chapter 4 concerning earnings quality. We learned that managers have the ability to a limited degree, to manipulate reported income and that many observers believe this practice diminishes earnings quality because it can mask permanent earnings. Former SEC Chairman Arthur Levitt listed discretionary accruals, which he called "Miscellaneous Creative Jar Row" as one of the most popular methods companies use to manipulate income.

Financial analysts must be alert to the effect of discretionary accruals on income. Abnormal fluctuations in these items should raise a red flag motivating further investigation. In

ARTHUR LEVITT, JR.

A third major player by some companies is using unusual assumptions to estimate such items as sales returns, warranty costs, or other items that are subject to change. They slash accruals in times of rising good news and push up them when needed in the bad times.

¹³ Lev and S. B. Thompson, "Fundamental Information Analysis," *Journal of Accounting Research* 11, no. 2 (Autumn 1973): 161-190. See also S. B. Thompson, "The Use of Financial Ratios in the Prediction of Stock Returns," *Journal of Accounting Research* 11, no. 2 (Autumn 1973): 191-201.

¹⁴ Nicholas Long, "Targeted Sales Growth," *Barron's*, June 8, 1998.

¹⁵ Arthur Levitt, Jr., "The Numbers Game," *The ENR Investor's Guide*, March, p. 16.

Karbeam example, for instance, red flags in the 1991 income statement included a variety of unusual expenses and a large increase in general and administrative expenses. The balance sheet reported an increase of 44% in current liabilities from the prior year. This increase was caused by activities that included a significant accrual for restructuring costs and a large increase in the accrued warranty liability. The allowance for uncollectible accounts also increased by 30%. The marketplace was less than vigilant in noting and interpreting these signs. ■

FINANCIAL REPORTING CASE SOLUTION

Explain the allowance method of accounting for bad debts. (p. 314) The allowance method estimates future bad debts in order to (1) match bad debt expense with related revenues and (2) report accounts receivable in the balance sheet at net realizable value. In an adjusting entry, we record bad debt expense and reduce accounts receivable indirectly by crediting a contra account to accounts receivable for an estimate of the amount that eventually will prove uncollectible.

What approaches might Cason have used to arrive at the \$275 million bad debt provision? (p. 315) There are two ways commonly used to arrive at an estimate of future bad debts, the income statement approach and the balance sheet approach. Using the income statement approach, we estimate bad debt expense as a percentage of each period's net credit sales. The balance sheet approach determines bad debt expense by estimating the net realizable value of accounts receivable. In other words, the allowance for uncollectible accounts is determined and bad debt expense is an indirect outcome of adjusting the allowance account to the desired balance.

Are there any alternatives to the allowance method? (p. 317) An alternative to the allowance method is the direct write-off method. Using this method, adjusting entries are not recorded and any bad debt that does arise simply is written off as bad debt expense. Of course, if the sale that generated this receivable occurred in a previous reporting period, this violates the matching principle. Operating expenses would have been understated and assets overstated that period. This is why the direct write-off method is not permitted by GAAP except in limited circumstances. ■

THE BOTTOM LINE

Internal control refers to the plan designed to encourage adherence to company policies and procedures, promote operational efficiency, minimize irregularities, errors, thefts or fraud, and maximize the reliability and accuracy of accounting data. Key elements of an internal control system for cash receipts and disbursements include separation of record-keeping from control of cash duties and the periodic preparation of a bank reconciliation.

- Cash can be informally restricted by management for a particular purpose. Restrictions also can be contractually imposed. If restricted cash is available for current operations or to pay current liabilities, it's classified as a current asset; otherwise, it's classified as investments and funds or other assets.
- The gross method of accounting for cash discounts considers a discount not taken as part of sales revenue. The net method considers a discount not taken as interest revenue.
- When merchandise returns are anticipated, an allowance for sales returns should be recorded as a contra account to accounts receivable and sales revenue also should be reduced by the anticipated sales returns.
- Uncollectible accounts receivable should be anticipated in order to match bad debt expense with revenues generated. Likewise, accounts receivable should be reduced by an allowance for uncollectible accounts to report accounts receivable at net realizable value.



6. There are two approaches to estimating future bad debts. The income statement approach estimates bad debt expense based on the notion that a certain percentage of each period's credit sales will prove to be uncollectible. The balance sheet approach to estimating future bad debts indirectly determines bad debt expense by directly estimating the net realizable value of accounts receivable at the end of the period.
7. Notes receivable are formal credit arrangements between a creditor (lender) and a debtor (borrower). The typical note receivable requires the payment of a specified face amount, also called principal, at a specified maturity date or dates. In addition, interest is paid at a stated percentage of the face amount. Interest on notes is calculated by multiplying the face amount by the annual rate by the fraction of the annual period.
8. A wide variety of methods exists for companies to use their receivables to obtain immediate cash. These methods can be described as either
 - a. A secured borrowing
 - b. A sale of receivables
 If these conditions, indicating surrender of control, are met, the transfer accounts for a transfer of receivables as a sale; otherwise as a secured borrowing.
9. A company's investment in receivables is influenced by several related variables, to include the level of sales, the nature of the product or service, and credit and concern policies. Investors, creditors, and financial analysts can gain important insights by examining a company's investment in receivables. The receivables turnover and a days collection period ratios are designed to monitor receivables. ■



CASH CONTROLS

Bank Reconciliation

One of the most important tools used in the control of cash is the bank reconciliation. Since all cash receipts are deposited into the bank account and cash disbursements are made by check, the bank account provides a separate record of cash. It's desirable to periodically compare the bank balance with the balance in the company's own records and reconcile any differences.

From your own personal experience, you know that the ending balance in your checking account reported on the monthly bank statement you receive rarely equals the balance you have recorded in your checkbook. Differences arise from two types of items: timing differences and errors.

Timing differences occur when the company and the bank record transactions at different times. At any point in time the company may have adjusted the cash balance for items of which the bank is not yet aware. Likewise, the bank may have adjusted its record of that balance by items of which the company is not yet aware. For example, checks written and cash deposits are not all processed by the bank in the same month that they are recorded by the company. Also, the bank may adjust the company's account for items such as service charges that the company is not aware of until the bank statement is received.

Errors can be made either by the company or the bank. For example, a check might be written for \$2.00 but recorded on the company's books as a \$120 disbursement; a deposit of \$50 might be processed incorrectly by the bank as a \$5 deposit. In addition to serving as a safeguard of cash, the bank reconciliation also uncovers errors such as these and helps to ensure that the proper cash balance is reported on the balance sheet.

Bank reconciliations include adjustments to the balance per bank for timing differences involving transactions already reflected in the company's accounting records that have not yet been processed by the bank. These adjustments usually include *checks outstanding* or *deposits outstanding*. In addition, the balance per bank would be adjusted for any bank errors discovered. These adjustments produce an adjusted bank balance that represents the corrected cash balance.

The balance per books is similarly adjusted for timing differences involving transactions already reflected by the bank of which the company is unaware until the bank statement is

DIFFERENCES BETWEEN
BOOK AND BANK BALANCES
ARISE FROM
TIMING DIFFERENCES AND
ERRORS.

STEP 1: Adjust the
bank balance to the
corrected cash balance.

STEP 2: Adjust the
book balance to the
corrected cash balance.



Step 1: Adjustments to Bank Balance

add deposits outstanding. These represent cash amounts received by the company that have not been deposited in the bank. All cash receipts recorded in the bank ledger, the company's cash receipts journal, are deposited in the bank until after the cutoff date.

2. Deduct checks outstanding. These items are checks written by the company that have not yet been processed by the bank.

3. Before any of these will either be increased or decreased, depending on the nature of the item.

received by the company that have not been deposited in the bank statement as of the cutoff date that are not recorded in the company's cash receipts journal.

and recorded in the company's cash receipts journal before the cutoff date.

, depending on the nature of the item.

Step 2: Adjustments to Book Balance

add adjustments to the company's book balance. These include items that are not recorded in the company's cash receipts journal but are recorded in the bank statement as of the cutoff date.

1. Add bank service charges. These are charges for services provided by the bank to the company, such as the cost of maintaining a checking account. The checks are returned to the company, which is responsible for the amount.

2. Add or subtract items that will either be increased or decreased, depending on the nature of the item.

and other items that are not recorded in the company's cash receipts journal.

be charged to the company's cash receipts journal as of the cutoff date.

company's cash receipts journal. The company is responsible for the amount of the check.

, depending on the nature of the item.

GRAPHIC 7A-1**Bank Reconciliation: Reconciling Items**

| |
|----------------------|
| Bank statement |
| Deposits outstanding |
| Checks outstanding |
| Errors |
| Corrected balance |

Book balance

| |
|---------------------|
| + Add: deposits |
| - Subtract: charges |
| +/- Checks |
| Errors |
| Adjusted balance |

The adjusted balance of the book balance will equal the adjusted balance of the bank statement.

These would include service charges, charges for NSF (non-sufficient funds) checks, and collections made by the bank on the company's behalf. In addition, the balance per bank is adjusted for any company errors discovered, resulting in an adjusted book balance that will also represent the corrected cash balance. Each of these adjustments requires a journal entry to correct the book balance. Only adjustments to the book balance require journal entries. Graphic 7A-1 recaps these reconciling items.

To demonstrate the bank reconciliation process, consider Illustration 7A-1.

The next step is to prepare adjusting journal entries to reflect each of the adjustments to the balance per books. These represent amounts the company was not previously aware of. Journalizing entries are needed for the adjustments to the balance per bank because the company's ledger will reflect these items. However, it is important to be notified of any errors on the bank's end.

| | | |
|---|-------|-------|
| Cash | 1,200 | |
| Accounts receivable | | 1,000 |
| Interest revenue | | 20 |
| | | |
| Merchandise inventory (bank service charges) | 80 | |
| Accounts receivable (NSF checks) | 2,187 | |
| Accounts payable (payment to bank's supplier) | 1,000 | |
| Cash | | 3,247 |

To record the receipt of principal and interest on note collected directly by the bank

To record errors to cash revealed by the bank statement

After these entries are posted, the general ledger cash account will equal the corrected balance of the bank statement.

Petty Cash

Many companies keep a small amount of cash on hand to pay for low-cost items such as office supplies, delivery charges, and entertainment expenses. It would be inconvenient and costly to process a check each time these small payments are made. A petty cash fund provides a more efficient way to handle these payments.

In May 2006, the Hawthorne Manufacturing Company established a \$200 petty cash fund. John Kungo is designated as the petty cash custodian. The fund will be replenished at the end of each month. On May 1, 2006, a check is written for \$200 made out to John Kungo, petty cash custodian. During the month of May, John paid bills totaling \$160 summarized as follows:

| | |
|------------------|-----|
| Postage | 40 |
| Office supplies | 35 |
| Delivery charges | 50 |
| Entertainment | 35 |
| Total | 160 |

ILLUSTRATION 7A-2
Petty Cash Fund

No entries are recorded at the time the actual expenditures are made from the fund. The expenditures are recorded when reimbursement is requested at the end of the month. At that time, a check is written to John Kungo, petty cash custodian, for the total of the fund receipts, \$160 in this case. John cashes the check and replenishes the fund to \$200. In journal entry form, replenishing the fund would be recorded as follows:

| | |
|-------------------------|-----|
| May 31, 2006 | |
| Postage expense | 40 |
| Office supplies expense | 35 |
| Petty cash expense | 50 |
| Entertainment expense | 35 |
| Cash (checking account) | 160 |

This is appropriate because the expenses are properly classified and the cash account is debited in the correct amount.

The petty cash account is not debited when replenishing the fund. If, however, the size of the fund is increased at time of replenishment, the account is debited for the increase. Similarly, petty cash would be credited if the size of the fund is decreased.

To maintain the control objective of separation of duties, the petty cash custodian should not be involved in the process of writing or approving checks, nor in recordkeeping. In addition, management should arrange for surprise counts of the fund. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 7-1 Define cash equivalents.
- Q 7-2 Explain the primary functions of internal control procedures in the accounting area. What is meant by separating of duties?
- Q 7-3 What are the responsibilities of management described in Section 404 of the Sarbanes-Oxley Act? What are the responsibilities of the company's auditor?
- Q 7-4 Define a compensating balance. How are compensating balances reported in financial statements?
- Q 7-5 Explain the difference between a trade discount and a cash discount.
- Q 7-6 Distinguish between the gross and net methods of accounting for cash discounts.
- Q 7-7 Briefly explain the accounting treatment for sales returns.
- Q 7-8 Explain the typical way companies account for uncollectible accounts receivable (bad debts). When is it permissible to record bad debt expense only when receivables actually prove uncollectible?
- Q 7-9 Briefly explain the difference between the income statement approach and the balance sheet approach to estimating bad debts.
- Q 7-10 Is any special accounting treatment required for the assigning of accounts receivable to others as collateral for debt?
- Q 7-11 Explain any possible differences between accounting for accounts receivable factored without recourse and those factored with recourse.
- Q 7-12 What is meant by the discounting of a note receivable? Describe the four-step process used to account for discounted notes.
- Q 7-13 What are the key variables that influence a company's investment in receivables? Describe the variables used by financial analysts to compute a company's investment in receivables.

- Q 7-14 Based on Appendix 7: In a two-step bank reconciliation, identify the items that might be necessary to adjust the bank balance in the uncorrected cash balance. Identify the items that might be necessary to adjust the bank balance in the corrected cash balance.
- Q 7-15 Based on Appendix 7: How is a petty cash fund established? How is the fund replenished?

BRIEF EXERCISES

BE 7-1
Internal control

- LO

Janice Dodd opens the mail for the Ajot Plumbing Company. She has all customer checks on a spread-sheet that includes the name of the customer and the check amount. The checks, along with the spreadsheet, are then sent to Jim Seymour in the accounting department who records the checks and deposits them daily in the company's checking account. How could the company improve its internal control of procedures for the handling of its cash receipts?

BE 7-2
Cash and cash
equivalents

- LO2

The following items appeared on the year-end trial balance of Consolidated Freight Corporation: cash in checking account, U.S. Treasury bills that mature in six months, undeposited customer checks, cash in a savings account, and currency and coins. Which of these items would be included in the company's balance sheet as cash and cash equivalents?

BE 7-3
Cash discounts; gross
method

- LO3

On December 31, 2006, Tristar Communications sold 10 units of its new satellite uplink system to various customers for \$25,000 each. The terms of each sale were 1/10, n/30. Tristar uses the gross method of accounting for sales discounts. In what year will discounts before tax be affected assuming that all customers paid the net price within 10 days of January 1, 2007? By how much?

BE 7-4
Cash discounts; net
method

- LO3

Refer to the situation described in BE 7-3. Answer the questions assuming that Tristar uses the net method to account for sales discounts.

BE 7-5
Sales returns

- LO4

During 2006, its first year of operation, Hanks Industries recorded sales of \$4,000,000 and experienced returns of \$720,000. Cost of goods sold totaled \$6,160,000 (60% of sales). The company estimates that 1% of all sales will be returned. Prepare the year-end adjusting journal entries to account for anticipated sales returns.

BE 7-6
Uncollectible accounts;
income statement
approach

- LO5, LO6

The following information relates to a company's accounts receivable and allowance for uncollectible accounts at the beginning of the year: \$300,000 allowance for uncollectible accounts at the beginning of the year, \$25,000 (credit balance); credit sales during the year, \$1,500,000; accounts receivable written off during the year, \$10,000; cash collections from customers, \$1,430,000. Assuming the company estimates bad debts as a percent of credit sales, calculate: 1) bad debt expense for the year and 2) the year-end balance in the allowance for uncollectible accounts.

BE 7-7
Uncollectible accounts;
balance sheet approach

- LO5, LO6

Refer to the situation described in BE 7-6. Answer the two questions assuming the company estimates that future bad debts will equal 0.6% of the year-end balance in accounts receivable.

BE 7-8
Uncollectible accounts;
aging for unknown

- LO5, LO6

A company's year-end balance in accounts receivable is \$2,000,000. The allowance for uncollectible accounts had a beginning-of-year credit balance of \$31,000. An aging of accounts receivable at the end of the year indicates a required allowance of \$38,000. If bad debt expense for the year was \$40,000, what was the amount of bad debts written off during the year?

BE 7-9
Uncollectible accounts;
aging for unknown

- LO5, LO6

Refer to the situation described in BE 7-8. If credit sales for the year were \$8,200,000 and \$2,040,000 were collected from credit customers, what was the beginning-of-year balance in accounts receivable?

BE 7-10
Note receivable

- LO7

On December 31, 2006, Davenport Company had merchandise on consignment for \$200,000. In payment for the merchandise, the customer signed a 6% note requiring the payment of interest and principal on March 1, 2007. How much interest revenue will the company recognize during 2006? In 2007?

11. 4
Factoring of accounts receivable

12. 3

13. 2
Factoring of accounts receivable

14. 3

15. 4
Discounting a note

16. 2

17. 12
Receivables turnover

18. 2

Longtech Corporation transferred \$30,000 of accounts receivable to a local bank. The transfer was made without recourse. The local bank retains 65% of the factored amount to Longtech and returns the remaining 35% when the bank collects the receivables. It will remit to Longtech the returned amount less a fee equal to 3% of the total amount factored. What is the effect of this transaction on the company's assets, liabilities, and income before income taxes?

Refer to the situation described in Q15. Assuming that the sale criteria are not met, describe how Longtech would account for this transfer.

On March 15, Dwyer Publishing discounted a \$30,000 note to a local bank. The note was dated February 18 and required the payment of the principal amount and interest at 6% on May 31. The bank's discount rate is 8%. How much cash will Dwyer receive from the bank on March 31?

Camden Hardware's credit sales for the year were \$320,000. Accounts receivable at the beginning and end of the year were \$30,000 and \$70,000, respectively. Calculate the accounts receivable turnover ratio and the average collection period for the year.

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/spiceland4e.

19. 4
Cash and cash equivalents, restricted cash

20. 3

The controller of the Red Wing Corporation is in the process of preparing the company's 2006 financial statements. She is trying to determine the correct balance of cash and cash equivalents to be reported as a current asset on the balance sheet. The following items are being considered:

- Balance in the company's account at the First National Bank, checking \$15,500, savings \$12,100.
- Undeposited customer checks of \$5,000.
Currency and coins on hand of \$500.
- Savings account at the East Bay bank with a balance of \$400,000. This account is being used to accumulate cash for future plant expansion in 2006.
\$20,000 in a checking account at the East Bay Bank. The balance in the account represents a 20% compensating balance for a \$100,000 loan with the bank. Red Wing may not withdraw the funds until the loan is due in 2008.
- U.S. Treasury bills, 2-month maturity bills totaling \$15,000, and 7-month bills totaling \$25,000.

Required:

- Determine the correct balance of cash and cash equivalents to be reported in the current asset section of the 2006 balance sheet.
- For each of the items not included in your answer to requirement 1, explain the correct classification of the item.

21. 4
Cash and cash equivalents

22. 3

Delta Automotive Corporation has the following assets listed in its 12/31/06 trial balance:

| | |
|--|----------|
| Cash in bank—checking account | \$22,500 |
| U.S. Treasury bills (maturity in 30 days) | 5,000 |
| Cash on hand (currency and coins) | 1,350 |
| U.S. Treasury bills (maturity in six months) | 9,000 |
| Undeposited customer checks | 640 |
| Restricted cash | 0 |

Required:

- Determine the correct balance of cash and cash equivalents to be reported in the current asset section of the 2006 balance sheet.
- For each of the items not included in your answer to requirement 1, explain the correct classification of the item.

23. 4
Cash and cash equivalents, the gross method and the net method compared

24. 3

Tracy Company, a manufacturer of air conditioning units, sold 100 units to Thomas Company on November 7, 2006. The units have a list price of \$600 each, but Thomas was given a 30% trade discount. The terms of the sale were 2/10, n/30.

Required:

1. Prepare the journal entries to record the sale on November 17 (ignore cost of goods) and payment on November 26, 2006, assuming that the gross method of accounting for cash discounts is used.
2. Prepare the journal entries to record the sale on November 17 (ignore cost of goods) and payment on December 15, 2006, assuming that the gross method of accounting for cash discounts is used.
3. Repeat requirements 1 and 2 assuming that the net method of accounting for cash discounts is used.

E 7-4

Cash discounts: the gross method

LO3

Harwell Company manufactures automobile tires. On July 15, 2006, the company sold 1,000 tires to Nixon Car Company for \$30 each. The terms of the sale were 2/10, n/30. Harwell uses the gross method of accounting for cash discounts.

Required:

1. Prepare the journal entries to record the sale on July 15 (ignore cost of goods) and payment on July 23, 2006.
2. Prepare the journal entries to record the sale on July 15 (ignore cost of goods) and payment on August 15, 2006.

E 7-5

Cash discounts: the net method

LO3

(This is a variation of the previous exercise modified in facts on the net method of accounting for cash discounts.)

Harwell Company manufactures automobile tires. On July 15, 2006, the company sold 1,000 tires to Nixon Car Company for \$30 each. The terms of the sale were 2/10, n/30. Harwell uses the net method of accounting for cash discounts.

Required:

1. Prepare the journal entries to record the sale on July 15 (ignore cost of goods) and payment on July 23, 2006.
2. Prepare the journal entries to record the sale on July 15 (ignore cost of goods) and payment on August 15, 2006.

E 7-6

Uncollectible accounts: allowance method vs. direct write-off method

LO5, LO4

Johnson Company uses the allowance method to account for uncollectible accounts receivable. Bad debt expense is established as a percentage of net sales. For 2006, net sales totaled \$2,500,000 and the estimated bad debt percentage is 4%. The allowance for uncollectible accounts had a credit balance of \$42,000 at the beginning of 2006 and \$40,000 after adjusting entries, at the end of 2006.

Required:

1. What is bad debt expense for 2006?
2. Determine the amount of accounts receivable written off during 2006.
3. If the company uses the direct write-off method, what would bad debt expense be for 2006?

E 7-7

Uncollectible accounts: allowance method balance sheet approach

LO5, LO4

Colorado Rocky Cakes Company offers credit terms to its customers. At the end of 2005, accounts receivable totaled \$574,000. The allowance method is used to account for uncollectible accounts. The allowance for uncollectible accounts had a credit balance of \$37,000 at the beginning of 2006 and \$27,000 at the end of 2006. Accounts receivable were written off during the year as uncollectible. Also, \$1,200 in cash was received in December from a customer whose account previously had been written off. The company estimates bad debts by applying a percentage of 10% to accounts receivable at the end of the year.

Required:

1. Prepare journal entries to record the write-off of receivables, the collection of \$1,200 for previously written off receivables, and the year-end adjusting entry for bad debt expense.
2. How would accounts receivable be shown in the 2006 year-end balance sheet?

E 7-8

Uncollectible accounts: allowance method and direct write-off method compared solving for unknown

LO6

Castle Company provides estimates for its uncollectible accounts. The allowance for uncollectible accounts had a credit balance of \$17,200 at the beginning of 2006 and a \$22,400 credit balance at the end of 2006. (For adjusting entries.) If the direct write-off method had been used to account for uncollectible accounts, the debit expense equals actual write-offs. The net income statement for 2006 would have included the debit expense of \$5,700 and revenue of \$6,200 from the collection of previously written off bad debts.

Required:

Determine bad debt expense for 2006 assuming the allowance method.

E 7-9

Uncollectible accounts: allowance method solving for unknowns

LO1, LO4

Microsoft Corporation reported the following information in its 2004 financial statements (\$ in millions):

| | 2004 | 2003 |
|--------------------------|----------|---------|
| Balance Sheet: | | |
| Accounts receivable, net | \$ 5,406 | \$5,796 |
| 2004 Income statement: | | |
| Sales revenue | \$36,895 | |

A note discloses that the allowance for uncollectible accounts had a balance of \$700 million and \$242 million at the end of 2004 and 2003, respectively. Bad debt expense for 2004 was \$44 million.

Required:

Describe the amount of cash collection from customers during 2006.

On June 30, 2006, the Esquire Company sold some merchandise to a customer for \$30,000. It prepared an invoice agreed to accept a 6% note requiring the payment of interest and principal on March 31, 2007. The 6% rate is appropriate in this situation.

Required:

1. Prepare journal entries to record the sale of merchandise (omit any entry that might be required for the cost of the goods sold), the December 31, 2006, interest accrual, and the March 31 collection.
2. If the December 31 adjusting entry for the interest accrual is not prepared, by how much will income before income taxes be over or understated in 2006 and 2007?

(This is a variation of the previous exercise modified to focus on a noninterest-bearing note.)

On June 30, 2006, the Esquire Company sold some merchandise to a customer for \$30,000 and agreed to accept as payment a noninterest-bearing note with an 8% discount rate requiring the payment of \$30,000 on March 31, 2007. The 8% rate is appropriate in this situation.

Required:

1. Prepare journal entries to record the sale of merchandise (omit any entry that might be required for the cost of the goods sold), the December 31, 2006, interest accrual, and the March 31 collection.
2. What is the effective interest rate on the note?

On January 1, 2006, the Apex Company exchanged some shares of common stock it had been holding as an investment for a note receivable. The note principal plus interest is due on January 1, 2007. The 2006 annual statement reported \$2,200 in interest revenue from this note and a \$5,000 gain on sale of investment in stock. The stock's book value was \$15,000. The company's fiscal year ends on December 31.

Required:

1. What is the note's effective interest rate?
2. Recalculate the journal entries to record the sale of the stock on January 1, 2006, and the adjusting entry to record interest revenue at the end of 2006. The company records adjusting entries only at year-end.

The following questions dealing with accounts receivable are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statements of questions.

1. When the allowance method of recognizing uncollectible accounts is used, the entry to record the write-off of a specific account:
 - a. Debits sales and increases both the allowance for uncollectible accounts and the allowance for uncollectible accounts.
 - b. Debits accounts receivable and increases the allowance for uncollectible accounts.
 - c. Increases the allowance for uncollectible accounts and increases net income.
 - d. Debits both accounts receivable and the allowance for uncollectible accounts.
2. The following information pertains to Turn Co.'s accounts receivable at December 31, 2006:

| Days Outstanding | Amount | Estimated % Uncollectible |
|------------------|-----------|---------------------------|
| 1-60 | \$120,000 | 1% |
| 61-120 | 90,000 | 2 |
| Over 120 | 100,000 | 6 |
| | \$310,000 | |

During 2006, Turn wrote off \$7,000 of receivables and recovered \$4,000 that had been written off in prior years. Turn's December 31, 2006, allowance for uncollectible receivables was \$12,000. Under the aging method, what amount of allowance for uncollectible receivables should Turn report at December 31, 2006?

- a. \$4,000
- b. \$5,000
- c. \$12,000
- d. \$19,000

Mull Co.'s allowance for uncollectible accounts was \$100,000 at the end of 2006 and \$90,000 at the end of 2005. For the year ended December 31, 2006, Mull reported bad debt expense of \$10,000 in its income statement. What amount did Mull debit to the appropriate account in 2006 to write off actual bad debts?

- a. \$5,000
- b. \$10,000
- c. \$100,000
- d. \$105,000

4. At January 1, 2006, Jernin Co. had a credit balance of \$260,000 in its allowance for uncollectible accounts. Based on past experience, 2% of Jernin's credit sales have been uncollectible. During 2006, Jernin wrote off \$275,000 of uncollectible accounts. Credit sales for 2006 were \$9,000,000. In its December 31, 2006, balance sheet, what amount should Jernin report as allowance for uncollectible accounts?
- \$ 5,000
 - \$ 275,000
 - \$245,000
 - \$260,000

E 7-14

Assigning of specific accounts receivable

LO8

On June 30, 2006, the High Five Surfboard Company had outstanding accounts receivable of \$600,000. On July 1, 2006, the company borrowed \$400,000 from the Equitable Finance Corporation and signed a promissory note. Interest at 10% is payable monthly. The company assigned specific receivables totaling \$600,000 as collateral for the loan. Equitable Finance charges a finance fee equal to 1.8% of the accounts receivable assigned.

Required:

Prepare the journal entry to record the borrowing on the books of High Five Surfboard.

E 7-15

Factoring of accounts receivable without recourse

LO8

Mountain High Ice Cream Company transferred \$600,000 of accounts receivable to the Prudential Bank. The transfer was made *without recourse*. Prudential retains 40% of the factored amount to Mountain High as its share. With the bank's collection efforts, it will remit to Mountain High the retained amount less a 2% fee (2% of the total factored amount).

Required:

Prepare the journal entry to record the transfer on the books of Mountain High assuming that the sale criteria are met.

E 7-16

Factoring of accounts receivable with recourse

LO8

[This is a variation of the previous exercise modified to focus on factoring with recourse.]

Mountain High Ice Cream Company transferred \$600,000 of accounts receivable to the Prudential Bank. The transfer was made *with recourse*. Prudential retains 40% of the factored amount to Mountain High and retains 10%. When the bank collects the receivables, it will remit to Mountain High the retained amount less a 2% fee (2% of the total factored amount). Mountain High anticipates a \$3,000 recourse obligation.

Required:

Prepare the journal entry to record the transfer on the books of Mountain High assuming that the sale criteria are met.

E 7-17

Discounting a note receivable

LO8

Selkirk Company obtained a \$15,000 note receivable from a customer on January 1, 2006. The note, along with interest at 10%, is due on July 1, 2006. On February 28, 2006, Selkirk discounted the note at a financial bank. The bank's discount rate is 14%.

Required:

Prepare the journal entries required on February 28, 2006, to receive interest and to record the discounting round all calculations to the nearest dollar for Selkirk. Assume that the discounting is accounted for as a sale.

E 7-18

Multiple choice financing with receivables

LO8

The following questions dealing with financing with receivables are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statements or questions.

- Gar Co. factored its receivables without recourse with Ross Bank. Gar received cash as a result of this transaction, which is best described as a
 - Loan from Ross collateralized by Gar's accounts receivable.
 - Loan from Ross to be repaid by the proceeds from Gar's accounts receivable.
 - Sale of Gar's accounts receivable to Ross, with the risk of uncollectible accounts retained by Gar.
 - Sale of Gar's accounts receivable to Ross, with the risk of uncollectible accounts transferred to Ross.
- Roth, Inc. received from a customer a one-year, \$500,000 note bearing annual interest of 8%. After holding the note for six months, Roth discounted the note at Regional Bank at an effective interest rate of 10%. What amount of cash did Roth receive from the bank?
 - \$540,000
 - \$515,000
 - \$514,000
 - \$495,000

E 7-19

Concepts terminology

LO1 through LO8

Listed below are several terms and phrases associated with cash and receivables. Pair each item from List A by letter with the item from List B that is most appropriately associated with it.

List A

- 1 Internal control
- 2 Trade discount
- 3 Cash equivalents
- 4 Allowance for uncollectibles
- 5 Cash discount
- 6 Direct write-off approach
- 7 Net method
- 8 Compensating balance
- 9 Discounting
- 10 Gross method
- 11 Direct write-off method
- 12 Factoring

List B

- a Restriction on cash
- b Cash discount not taken is sales revenue
- c Includes separation of duties
- d Bad debt expense is % of credit sales
- e Recognizes bad debts as they occur
- f Sale of receivables to a financial institution
- g Highly liquid investments
- h Estimate of bad debts
- i Reduction in amount paid by credit customer
- j Reduction below list price
- k Cash discount not taken is interest revenue
- l Bad debt expense determined by estimating realizable value
- m Sale of note receivable to a financial institution

Weldon Corporation's Fiscal Year ends December 31. The following is a list of transactions involving receivables that occurred during 2006:

- Mar. 17 Accounts receivable of \$1,700 were written off as uncollectible. The company uses the allowance method.
- 30 Loaned an officer of the company \$25,000 and received a note requiring principal and interest at 7% to be paid on March 30, 2007.
- May 20 Discounted the \$25,000 note at a local bank. The bank's discount rate is 8%. The note was discounted without recourse and the sale criteria are met.
- June 30 Sold merchandise to the Blankenship Company for \$12,000. Terms of the sale are 2/10, n/30. Weldon uses the gross method to account for cash discounts.
- July 8 The Blankenship Company paid its account in full.
- Aug. 31 Sold stock in a nonpublic company with a book value of \$3,000 and accepted a \$6,000 non-interest-bearing note with a discount rate of 4%. The \$6,000 payment is due on February 28, 2007. The stock has no ready market value.
- Dec. 31 Bad debt expense is determined to be 2% of credit sales for the year. Credit sales for 2006 were \$700,000.

Required

1. Prepare journal entries for each of the above transactions. Round all calculations to the nearest dollar.
2. Prepare any additional required adjusting entries indicated.

Case Systems is the world's largest provider of hardware, software, and services that drive the internet. The company reports the following information at its financial statements for three consecutive quarters during the 2006 fiscal year (\$ in millions):

| | Three Months Ended | | |
|--------------------------|--------------------|--------------|---------------|
| | 9/30/04 (Q3) | 1/24/04 (Q2) | 10/25/03 (Q1) |
| Balance sheets: | | | |
| Accounts receivable, net | \$1,340 | \$2,040 | \$1,200 |
| Income statements: | | | |
| Sales revenue | \$5,620 | \$5,398 | \$5,000 |

Required

Compute the receivables turnover ratio and the average collection period for the second and third quarters. Assume that each quarter consists of 90 days.

The current asset section of the March 31 Outward Music Company's balance sheet reported the following amounts:

| | 12/31/06 | 12/31/05 |
|--------------------------|-----------|-----------|
| Accounts receivable, net | \$400,000 | \$300,000 |

The average collection period for 2006 is 50 days.

Required

Determine net sales for 2006.

The following questions dealing with receivables are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

1. Which of the following is not a cash equivalent?
2. Which of the following is not a cash equivalent?
3. Which of the following is not a cash equivalent?

4. Which of the following is not a cash equivalent?
5. Which of the following is not a cash equivalent?
6. Which of the following is not a cash equivalent?

7. Which of the following is not a cash equivalent?
8. Which of the following is not a cash equivalent?
9. Which of the following is not a cash equivalent?

10. Which of the following is not a cash equivalent?
11. Which of the following is not a cash equivalent?
12. Which of the following is not a cash equivalent?

Bad debt expense must be estimated in order to satisfy the matching principle when expenses are recorded in the same periods as the related revenues. In estimating bad debt expense for a period, companies generally choose

- Either an amount based on a percentage of total sales or an amount based on a percentage of accounts receivable after adjusting for any balance in the allowance for doubtful accounts
- A percentage of total sales
- Either an amount based on a percentage of credit sales or an amount based on a percentage of accounts receivable after adjusting for any balance in the allowance for doubtful accounts
- An amount equal to last year's bad debt expense

Questions 2 through 3 are based on the following information.

Madison Corporation uses the allowance method to value its accounts receivable and is making the annual adjustments at fiscal year-end, November 30. The proportion of uncollectible accounts is estimated based on past experience, which indicates 1% of net credit sales will be uncollectible. Total sales for the year were \$2,000,000 of which \$200,000 were cash transactions. Madison has determined that the November 30 accounts receivable balance of \$ 800,000 is uncollectible and will write off this account before year-end adjustments are made. Listed below are Madison's account balances at November 30 prior to adjustments and the \$ 80,000 write-off.

| | |
|---------------------------------|-------------|
| Sales | \$2,000,000 |
| Accounts receivable | 750,000 |
| Sales discounts | 125,000 |
| Allowance for doubtful accounts | 10,000 |
| Sales returns and allowances | 175,000 |
| Bad debt expense | 0 |

- The entry to write off North Corporation's accounts receivable balance of \$ 1,000, will
 - Increase total assets and decrease net income.
 - Decrease total assets and net income.
 - Have an effect on total assets and increase net income.
 - Have no effect on total assets and net income.
- As a result of the November 30 adjusting entry to provide for bad debts, the allowance for doubtful accounts will
 - Increase by \$30,000.
 - Increase by \$25,000.
 - Increase by \$ 5,000.
 - Decrease by \$ 5,000.

E 7-24
Petty cash (Based on
Appendix A)

LO 1

Loxley Company established a \$200 petty cash fund on October 2, 2006. The fund is replenished at the end of each month. At the end of October 2006, the fund contained \$37 in cash and the following receipts:

| | |
|-----------------|------|
| Office supplies | \$20 |
| Business travel | 40 |
| Postage | 20 |
| Miscellaneous | 19 |

Required:

Prepare the necessary general journal entries to establish the petty cash fund on October 2 and to replenish the fund on October 31.

E 7-25
Bank reconciliation
(Based on Appendix 7)

LO 1

Fisher Company's general ledger showed a checking account balance of \$23,820 at the end of May 2006. The May 31 cash receipts of \$2,460, included in the general ledger balance, were placed in the night depository at the bank on May 31 and were processed by the bank on June 1. The bank statement dated May 2006, showed bank service charges of \$38. All checks written by the company had been processed by the bank by May 31 and were listed on the bank statement except for checks totaling \$1,890.

Required:

Prepare a bank reconciliation as of May 31, 2006. *Hint:* You will need to compute the balance that would appear on the bank statement.

E 7-26
Bank reconciliation and
adjusting entries
(Based on Appendix 7)

LO 1

Harrison Company maintains a checking account at the First National City Bank. The bank provides a bank statement along with canceled checks on the 1st day of each month. The July 2006 bank statement includes the following information:

| | |
|----------------------|-----------|
| Balance July 1, 2006 | \$ 55,678 |
| Deposits | 129,500 |
| Checks processed | 1192,610 |
| Service charges | (20) |

| | |
|---|------------------|
| NSF checks | 200) |
| Monthly loan payment deducted directly by bank from account
(includes \$125 in interest) | 3 720) |
| Balance, July 31, 2006 | \$ 38,415 |

The company's general ledger accounts had a balance of \$5,915 at the end of July. Deposits outstanding totaled \$15,400 and all checks written by the company were returned by the bank except for those totaling \$1,420. In addition, a \$2,000 city deposit from a credit customer was recorded as a \$200 debit to cash and credit to accounts receivable, and a check correctly recorded by the company as a \$300 disbursement was incorrectly processed by the bank as a \$240 disbursement.

Required

1. Prepare a bank reconciliation as of July 31.

2. Prepare the necessary journal entries at the end of July to adjust the general ledger cash account.

PROBLEMS

An alternate exercise and problem set is available on the text website www.mhhe.com/spiceland4e.

Swathmore Clothing Corporation grants its customers 30-day credit. The company uses the allowance method for uncollectible accounts. The ending balance of its allowance account is computed by multiplying 3% times the amount of credit sales for the month. At the fiscal year-end of December 31, an aging of accounts receivable schedule is prepared and the allowance for uncollectible accounts is adjusted accordingly.

At the end of 2005, accounts receivable were \$576,000 and the allowance account had a credit balance of \$54,000. Accounts receivable account for 2006 was as follows:

| | |
|-----------------------|-------------------|
| Beginning balance | \$ 576,000 |
| Credit sale | 2 620,000 |
| Collection | 2 483,000 |
| Write-offs | 100,000 |
| Ending balance | \$ 613,000 |

An aging of accounts receivable is prepared at the following age summary of the ending accounts receivable:

| Age Group | Summary | |
|--------------|------------------|-----------------------|
| | Amount | Percent Uncollectible |
| 0-30 days | \$430,000 | 4% |
| 31-60 days | 93,000 | 5 |
| 61-90 days | 60,000 | 25 |
| Over 90 days | 30,000 | 40 |
| Total | \$613,000 | |

Required

1. Prepare a summary journal entry to record the monthly bad debt expense and the write-offs during the year.
2. Prepare the necessary year-end adjusting entry for bad debt expense.
3. What is total bad debt expense for 2006? How would accounts receivable appear in the 2006 balance sheet?

4. Prepare a comparison of the ending balance of the allowance for uncollectible accounts for the current year and the prior year, to check the full year adjustment calculation.

| | Current Year | Previous Year |
|--|--------------|---------------|
| Current account | | |
| Receivables, net of allowance of \$5,000
and \$6,500 in the previous year | 350,544 | 329,640 |

In addition, the income statement reported sales revenue of \$2,158,755 (dollars in thousands) for the current year. As sales are made on a credit basis, the statement of cash flows indicates that cash collected from customers during the current year was \$1,200,000 (dollars in thousands). There were no recoveries of accounts receivable previously written off.

Required:

- Compute the following dollar amounts in thousands:
 - The amount of uncollectibles written off by Amadahl during the current year.
 - The amount of bad debt expense that Amadahl would include in its income statement for the current year.

The approximate percentage that Amadahl used to estimate uncollectibles for the current year, assuming that it uses the income statement approach.
- Suppose that Amadahl had used the direct write-off method to account for uncollectibles. Compute the following (in thousands of dollars):
 - The amount of uncollectible information that would be included in the year-end balance sheet.
 - The amount of bad debt expense that Amadahl would include in its income statement for the current year.

P 7-3

Uncollectible accounts

LO 1, LO 2



Rainbow Cosmetic Company sells its products to customers on a credit basis. An adjusting entry for bad debt expense is recorded only at December 31, the company's fiscal year-end. The 2005 balance sheet discloses the following:

| | |
|--|-----------|
| Current assets | |
| Receivables, net of allowance for uncollectible accounts of \$30,000 | \$432,000 |

During 2006, credit sales were \$1,750,000, cash collections from customers \$1,810,000, and \$35,000 in accounts receivable were written off. In addition, \$3,000 was collected from a customer whose account was written off in 2005. An aging of accounts receivable at December 31, 2006, reveals the following:

| Age Group | Percentage of Year-End Receivables in Group | Percent Uncollectible |
|---------------|---|-----------------------|
| 0-60 days | 65% | 4% |
| 61-90 days | 20 | 15 |
| 91-120 days | 8 | 25 |
| Over 120 days | 7 | 40 |

Required:

- Prepare necessary journal entries to account for the 2006 write-offs and the collection of the overdue previously written off.
- Prepare the year-end adjusting entry for bad debts according to each of the following situations:
 - Bad debt expense is estimated to be 3% of credit sales for the year.
 - Bad debt expense is estimated by multiplying net realizable value of the receivables. The allowance for uncollectible accounts is estimated to be 10% of the year-end balance in accounts receivable.
 - Bad debt expense is estimated by multiplying net realizable value of the receivables. The allowance for uncollectible accounts is determined by an aging of accounts receivable.
- For situations (a)-(c) in requirement 2 above, what would be the net amount of accounts receivable reported in the 2006 balance sheet?

P 7-4

Notes receivable
solving for unknowns

LO 2

Cypress Oil Company's December 31, 2006, balance sheet lists \$645,000 of notes receivable and \$100,000 of interest receivable included in current assets. The following notes make up the notes receivable balance:

| | |
|--------|--|
| Note 1 | Dated 9/31/06, principal of \$300,000 and interest at 10% due on 2/28/07 |
| Note 2 | Dated 6/30/06, principal of \$150,000 and interest due 3/31/07 |
| Note 3 | \$700,000 face value non-interest-bearing note dated 9/30/06, due 3/31/07. Note was issued in exchange for other services. |

The company records adjusting entries only at year-end. There were no other notes receivable outstanding during 2006.

Required:

- Determine the rate used to discount the noninterest-bearing note.
- Determine the explicit interest rate on Note 2.
- What is the amount of interest revenue that appears in the company's 2006 income statement resulting from these notes?

P 7-5

Factoring versus
assigning of accounts
receivable

LO 1

Loringham Company occasionally uses its accounts receivable to obtain immediate cash. At the end of the 2006, the company had accounts receivable of \$780,000. Loringham needs approximately \$500,000 to maintain a unique industrial operation. In early 2006, a local bank offers Loringham the following alternative:

- Loringham can obtain \$500,000 cash payable within 10 days on the entire receivable balance as collateral. At the end of each month, Loringham will be required to pay the bank that equals the amount of accounts collected plus 2% interest on the unpaid balance of the note at the beginning of the period.

- b. Transfer \$550,000 of specific receivables to the bank without recourse. The bank will charge a 4% finance charge on the amount of receivables transferred. The bank will collect the receivables directly from customers. The sale criteria are met.

Required:

- Prepare the journal entries that would be required on July 1 for each of the alternatives.
- Assuming that 80% of all June 30 receivables are collected during July, prepare the necessary journal entries to record the collection and the remittance to the bank.
- For each alternative, explain any required time disclosures that would be included in the July 31 financial statements.

Samsen Wholesale Beverage Company regularly factors its accounts receivable with the Multiple Finance Company. On April 30, 2006, the company transferred \$800,000 of accounts receivable to Multiple. The transfer was made without recourse. Multiple remits 95% of the face amount and retains 4% when Multiple collects the receivables; it retains to Samsen the retained amount less a 4% fee (4% of the total factored amount).

Required:

Prepare journal entries for Samsen Wholesale Beverage for the transfer of accounts receivable on April 30 assuming the sale criteria are met.

Evergreen Company sells lawn and garden products to wholesalers. The company's fiscal year-end is December 31. During 2006, the following transactions related to receivables occurred:

- Feb. 28 Sold merchandise to Warren, Inc. for \$10,000 and accepted a 10%, 7-month note. This is an appropriate rate for this type of note.
- Mar. 31 Sold merchandise to Maddox Co. and accepted a noninterest-bearing note with a discount rate of 10%. The \$8,000 payment is due on March 31, 2007.
- Apr. 3 Sold merchandise to Carr Co. for \$7,000 with terms 2/10, n/30. Evergreen uses the gross method to account for cash discounts.
- 11 Collected the entire amount due from Carr Co.
- 17 A customer returned merchandise costing \$3,200. Evergreen reduced the customer's receivable balance by \$5,000, the sales price of the merchandise. Sales returns are recorded by the company as they occur.
- 30 Transferred receivables of \$50,000 to a factor without recourse. The factor charged Evergreen a 3% finance charge on the receivables transferred. The sale criteria are met.
- June 30 Discounted the Warren, Inc. note at the bank. The bank's discount rate is 12%. The note was discounted with a 10% fee.
- Aug. 31 Lennex, Inc. paid the note amount plus interest to the bank.

Required:

- Prepare the necessary journal entries for Evergreen for each of the above dates. For transactions involving the sale of merchandise, show the entry for the cost of goods sold rounded off calculations to the nearest dollar.
- Prepare any necessary adjusting entries at December 31, 2006. Adjusting entries are only recorded at year-end (round all calculations to the nearest dollar).
- Prepare a schedule showing the effect of the journal entries in requirements 1 and 2 on 2006 income before taxes.

Descriptions are provided below for six situations involving notes receivable being discounted at a bank. In each case, the maturity date of the note is December 31, 2006, and the principal and interest are due at maturity. For each, determine the proceeds received from the bank on discounting the note.

| Note | Note Face Value | Date of Note | Interest Rate | Date Discounted | Discount Rate |
|------|-----------------|--------------|---------------|-----------------|---------------|
| 1 | \$50,000 | 2/1/06 | 8% | 6/30/06 | 9% |
| 2 | 50,000 | 2/1/06 | 8 | 9/30/06 | 10 |
| 3 | 50,000 | 2/1/06 | 8 | 9/30/06 | 8 |
| 4 | 80,000 | 6/1/06 | 6 | 10/31/06 | 10 |
| 5 | 80,000 | 6/1/06 | 6 | 10/15/06 | 12 |
| 6 | 80,000 | 6/1/06 | 6 | 11/30/06 | 10 |

The bank statement for the checking account of Management Systems, Inc. (MSI) for the month of October 2006 is shown below. Information that might be useful in preparing a bank reconciliation is as follows:

- Outstanding checks were \$1,000.
- The December 31, 2006, cash receipts of \$575 were not deposited in the bank until January 3, 2007.
- One check written in payment of rent for \$246 was correctly reported by the bank but was misrecorded by MSI as a \$246 disbursement.
- In accordance with prior authorization, the bank withdrew \$450 directly from the checking account as payment on a mortgage note payable. The interest portion of that payment was \$150. MSI has made an entry to record the principal payment.

with the bank's cash account receivable without recourse.

Required:

- Prepare the necessary journal entries for Samsen Wholesale Beverage for the transfer of accounts receivable on April 30 assuming the sale criteria are met.

Discounting a note receivable

Required:

Excel

How reconcile a bank statement and cash account? Cash and equivalents (see Appendix 7)

Required:

- Bank service charges of \$14 were listed on the bank statement.
- A deposit of \$475 was recorded by the bank on December 31, but it did not belong to MSL. The deposit should have been made to the checking account of MSL, Inc.
- The bank statement included a charge of \$65 for an NSF check. The check was returned with the bank statement and the company will seek payment from the customer.
- MSL maintains a \$200 petty cash fund that was appropriately reimbursed at the end of December. According to instructions from MSL on December 31, the bank withdrew \$40,000 from the account and purchased U.S. Treasury bills for MSL. MSL recorded the transaction in its books on December 31 when it received notice from the bank. Half of the Treasury bills mature in two months and the other half in six months.

Required

- Prepare a bank reconciliation for the MSL checking account at December 31, 2006. You will have to compute the balance per books.
- Prepare any necessary adjusting journal entries indicated.
- What amount would MSL report as cash and cash equivalents in the current asset section of the December 31, 2006, balance sheet?

P 7-10
Bank reconciliation and
adjusting entries
Based on Appendix 7



Excel

- El Gato Farming Company maintains a checking account at American Bank. Bank statements are prepared at the end of each month. The November 30, 2006, reconciliation of the bank balance is as follows:

| | | |
|--|-------|----------------|
| Balance per bank, November 30 | | \$3,231 |
| Add: Deposits outstanding | | 1,200 |
| Less: Checks outstanding | | |
| #363 | \$123 | |
| #365 | 20 | |
| #367 | 56 | |
| #381 | 86 | |
| #382 | 340 | |
| | | <u>(806)</u> |
| Adjusted balance per bank, November 30 | | <u>\$3,625</u> |

The company's general ledger checking account showed the following for December:

| | |
|----------------------|-----------------|
| Balance, December 1 | \$ 3,625 |
| Receipts | 42,680 |
| Disbursements | <u>141,853</u> |
| Balance, December 31 | <u>\$ 4,452</u> |

The December bank statement contained the following information:

| | |
|----------------------|-----------------|
| Balance, December 1 | \$ 3,231 |
| Deposits | 43,000 |
| Checks processed | <u>141,978</u> |
| Service charges | (22) |
| NSF checks | <u>(806)</u> |
| Balance, December 31 | <u>\$ 3,851</u> |

The checks that were processed by the bank in December include all of the outstanding checks at the end of November except for check #365. In addition, there are some December checks that had not yet been processed by the bank by the end of the month. Also, you discover that check #43 for \$320 was erroneously recorded by the bank but was incorrectly recorded in the books as a \$270 disbursement. The advertising expense included in the bank's deposits is a \$100 deposit incorrectly credited to the company's account. The deposit should have been posted as the credit to the Jan Oates Company. The NSF checks have not been deposited and the company will seek payment from the customers involved.

Required

- Prepare a bank reconciliation for the El Gato checking account at December 31, 2006.
- Prepare any necessary adjusting journal entries indicated.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it to real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

1. **Problem**
2. **Analysis**
3. **Solution**
4. **Evaluation**

Magnath Company has an operating cycle of less than one year and provides credit terms for all of its customers. On April 1, 2006, the company reported, without recourse, sale of its accounts receivable.

Magnath uses the allowance method to account for uncollectible accounts. During 2006, sales accounts were written off as uncollectible and other accounts previously written off as uncollectible were collected. *Required:*

1. How should Magnath account for and report the accounts receivable factored on April 1, 2006? Why is this a financing treatment appropriate? How should Magnath account for the return of the accounts previously written off as uncollectible? What are the two basic approaches to adjusting the receivable accounts when the allowance method is used? What is the advantage for each approach?

ACFT unassigned

1. **Problem**
2. **Analysis**
3. **Solution**
4. **Evaluation**

You have been hired as a consultant by a parts manufacturing firm to provide advice as to the proper accounting methods the company should use in some key areas. In the area of receivables, the company provides you with the following information to use in your recommendation as to the allowance method for uncollectible accounts. She stated, "Financial statements should be based on objective data rather than the guesswork required for the allowance method. Besides, space for uncollectibles are fairly constant from period to period, with significant variations occurring infrequently; the direct write-off method is just as good as the allowance method." *Required:*

1. Draft a one-page response in the form of a memo to the president in support of your recommendation for the company to use the allowance method.

1. **Problem**
2. **Analysis**
3. **Solution**
4. **Evaluation**

Hogan Company uses the net method of accounting for sales discounts. Hogan offers trade discounts to various groups of buyers.

On August 1, 2006, Hogan factors some accounts receivable on a without recourse basis. Hogan incurred a finance charge.

Hogan also has some notes receivable bearing an appropriate rate of interest. The principal and total interest are due at maturity. The notes were received on October 1, 2006, and mature on September 30, 2007. Hogan's operating cycle is less than one year. *Required:*

1. a. Using the net method, how should Hogan account for the sales discounts at the date of sale? What is the rationale for the amount recorded as sales under the net method?
b. Using the net method, what is the effect on Hogan's sales revenues and net income when customers do not take the sales discounts?
2. What is the effect of trade discounts on sales revenue and accounts receivable? Why?
3. How should Hogan account for the accounts receivable factored on August 1, 2006? Why?
4. How should Hogan report the effects of the interest-bearing notes receivable in its December 31, 2006, balance sheet and its income statement for the year ended December 31, 2006? Why?

ACFT unassigned

1. **Problem**
2. **Analysis**
3. **Solution**
4. **Evaluation**

You have recently been hired as the assistant controller for Sunston Industries, a large publicly held manufacturing company. Your immediate superior is the controller who, in turn, is responsible to the vice president in finance.

The controller has assigned you the task of preparing the year-end adjusting entries for the receivables area. You have prepared an aging of accounts receivable and have applied historical percentages to the balances of each of the age categories. The analysis indicates that an appropriate balance for the allowance for uncollectible accounts is \$160,000. The existing balance in the allowance account prior to any adjusting entry is a \$20,000 credit balance.

After showing your analysis to the controller, he tells you to change the aging category of a large account from over 20 days to current receivables and to prepare a new invoice to the customer with a revised date that agrees with the new aging category. This will change the required allowance for uncollectible accounts from

\$181,000 to \$ 45,000. Justifiably, you ask the controller for an explanation for the change and he tells you, "We need the extra income; the fund-raising is too low."

Required:

1. What is the effect on income before taxes of the change requested by the controller?
2. Discuss the ethical dilemma you face. Consider your options and responsibilities along with the possible consequences of any action you might take.

Judgment Case 7-5 Internal control

LO

At the end of the year, independent auditors endorse the acquired internal control weaknesses and suggest alternative procedures to improve the accounting system.

1. The internal control system is designed to require all requests for payment out of the \$ 100,000, which is allocated to the company's cash account. At the end of each month, when cash is received, it is entered in the cash disbursements journal. The checks are then sent to the bank for deposit. The checks are then deposited in the bank.
2. All of the company's cash disbursements are made by check. Each check must be supported by an appropriate voucher which is initialed and signed by the appropriate manager. The vouchers are approved by Dean Leiser, the chief accountant, after reviewing the supporting documentation. Betty Hansen prepares the checks for Leiser's signature. Leiser maintains the company's check register (the cash disbursements journal) and reconciles the cash account at the end of each month.
3. The company's cash account is maintained by the company's chief accountant, Betty Hansen. A copy of the cash account is maintained by the company's chief accountant, Betty Hansen. The company's cash account is maintained by the company's chief accountant, Betty Hansen. The company's cash account is maintained by the company's chief accountant, Betty Hansen.

Real World Case 7-6 Bad debts

LO5

At the end of the year, independent auditors endorse the acquired internal control weaknesses and suggest alternative procedures to improve the accounting system. The company's 2004 financial statements contained the following information:

| | (\$ in thousands) | |
|--------------------------|-------------------|-----------|
| Balance sheets | 2004 | 2003 |
| Current assets: | | |
| Accounts receivable, net | \$ 19,804 | \$ 22,712 |
| Income statements | 2004 | 2003 |
| Net sales | \$196,336 | \$261,999 |

In addition, the statements of cash flows disclosed that accounts receivable decreased during 2004 \$2,908 (in thousands). This indicates that cash received from customers was \$2,908 (in thousands) in excess of sales revenue. Also, a disclosure note reported that the allowance for uncollectible accounts in thousands was \$696 and \$277 at the end of 2004 and 2003, respectively.

Required:

1. What is the amount of accounts receivable due from customers at the end of 2004 and 2003?
2. Assuming that all sales are made on a credit basis, determine the amount of bad debt expense for 2004 and the amount of actual bad debt write-offs made in 2004.

Real World Case 7-7 Receivables, bad debts

LO

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, indexing, and forwarding of submitted information to the SEC. Securities and Exchange Commission (SEC) requires all publicly traded companies to file financial statements with the SEC. The SEC requires all publicly traded companies to file financial statements with the SEC. The SEC requires all publicly traded companies to file financial statements with the SEC.

Required:

1. Access EDGAR on the Internet. The web address is www.sec.gov/edgar/disclosure/financials/financials.htm. Search for Arco Products, Inc. Access the 10-K filing for the most recent fiscal year. Search or scroll to find the financial statements.
2. Answer the following questions related to the company's accounts receivable and bad debts:
 - a. What is the amount of gross trade accounts receivable at the end of the year?
 - b. What is the amount of bad debt expense for the year? *Hint:* Check the statements of cash flows.
 - c. Determine the amount of actual bad debt write-offs made during the year. Assume that all bad debts relate only to trade accounts receivable.
 - d. Using only information from the balance sheets, income statements, and your answer to requirement 3c, determine the amount of cash collected from customers during the year. Assume

that all sales are made on account, that the company's policies are all written for sales returns that have previously written-off receivables were collected, and that all sales relate to trade accounts receivable.

McLaughlin Corporation uses the allowance method to account for bad debts. At the end of the company's fiscal year, accounts receivable are aged and the allowance for uncollectible accounts is adjusted. At the end of 2006, the company reported the following amounts:

| | |
|--|---------------------|
| At 12/31/06 Available: | \$10,850,000 |
| Less: Allowance for uncollectible accounts | (450,000) |
| Accounts receivable, net | <u>\$10,400,000</u> |

In 2007 it was determined that \$1,150,000 of year-end 2006 receivables had to be written off as uncollectible. This was due in part to the fact that Hughes Corporation, a long-standing customer that had always paid its bills, unexpectedly declared bankruptcy in 2007. Hughes owed McLaughlin \$1,400,000. At the end of 2006, some of the Hughes receivable was considered uncollectible.

Describe the appropriate accounting treatment and required disclosures for McLaughlin's write-off of bad debts at the end of 2006.

Financial institutions have developed a wide variety of methods for companies to use their receivables to obtain immediate cash. The methods differ with respect to which rights and risks are retained by the transferor (the original holder of the receivable) and those passed on to the transferee (the new holder usually a financial institution).

- Describe the alternative methods available for companies to use their receivables to obtain immediate cash.
- Discuss the alternative accounting treatments for these methods.

You are spending the summer working for a local wholesale furniture company, Samsom Furniture, Inc. The company is considering a proposal from a local financial institution, Old Reliant Financial, to factor Samsom's receivables. The company controller is unfamiliar with the most recent FASB pronouncement that deals with accounting for the transfer of financial assets and has asked you to do some research. The controller wants to make sure the arrangement with the financial institution is structured in such a way as to allow the factoring to be accounted for as a sale.

Old Reliant has offered to factor all of the company's receivables on a "without recourse" basis. Old Reliant will remit to Samsom 90% of the factored amount, collect the receivables from Skatrow & Corbin, and retain the remaining 10% until all of the receivables have been collected. When Old Reliant collects all of the receivables, it will remit to Samsom the retained amount, less a 4% fee (4% of the 10% factored amount).

Required:

- Explain the meaning of the term *without recourse*.
- Obtain the FASB standard its accounting for the transfer of financial assets. You might gain access through FARS (the FASB Financial Accounting Research System, from your school library, or some other source).
- What conditions must be met for a transfer of receivables to be accounted for as a sale? What is the specific citation that Samsom would rely on in applying that accounting treatment?
- Assuming that the conditions for treatment as a sale are met, prepare Samsom's journal entry to record the factoring of \$400,000 of receivables.
- An agreement that both entities and obligates the transferor Samsom, to repurchase or redeem transferred assets from the transferee Old Reliant maintains the transferor's effective control over those assets and the transfer is accounted for as a secured borrowing, not a sale, if not only if when repurchase or redemption occurs.

The table below contains selected financial information included in the 2004 financial statements of Sara Lee Corporation and Tyson Foods, Inc.

| | In millions | | | |
|--------------------------|-------------|----------|-------------|----------|
| | Sara Lee | | Tyson Foods | |
| | 2004 | 2003 | 2004 | 2003 |
| Balance sheet | | | | |
| Accounts receivable, net | \$ 1,939 | \$ 1,857 | \$ 1,240 | \$ 1,280 |
| Income statement | | | | |
| Net sales | 19,565 | 18,291 | 26,441 | 26,549 |

Problem

Calculate the 2004 receivables turnover ratio and average collection period for both companies. Evaluate the management of each company's investment in receivables.

7. Obtain annual reports from three corporations in the same primary industry and compare the receivables turnover ratios of the three.

Note: You can obtain copies of annual reports from your library from friends who are shareholders, from the investor relations departments of the corporations, from a friendly stockbroker, or from EDGAR "Electronic Data Gathering Analysis and Retrieval" on the Internet (www.sec.gov) or through Edgar.com at <http://www.edgar.com>.

Analysis Case 7-12
Reporting cash and
receivables

LO 7-13

FedEx Corporation

Refer to the financial statements and related disclosure notes of **FedEx Corporation** in Appendix B located at the back of this text.

Required

What is FedEx's policy for designating "restricted" as cash equivalents?

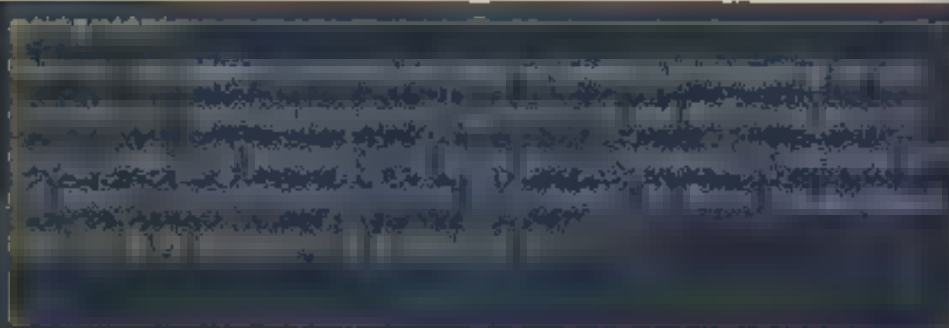
Determine the gross amount of receivables outstanding at May 31, 2004, and May 31, 2003.

What amount of receivables were written off during the 2004 fiscal year? Assume that no previously written-off receivables were collected during the year and that allowances relate only to allowances on uncollectible accounts. *Hint:* Check the statement of cash flows.

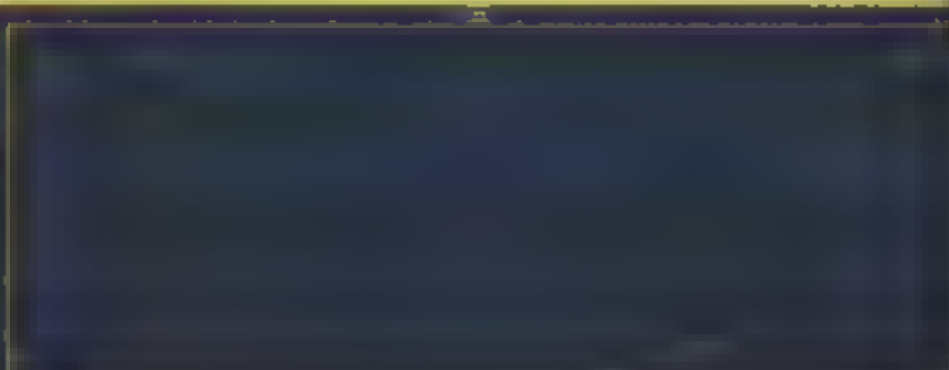


CHAPTER

Inventories: Measurement



- After studying this chapter, you should be able to:
- LO1 Explain the difference between a perpetual inventory system and a periodic inventory system.
 - LO2 Explain which physical quantities of goods should be included in inventory.
 - LO3 Determine the expenditures that should be included in the cost of inventory.
 - LO4 Differentiate between the specific identification, FIFO, LIFO, and average cost methods used to determine the cost of ending inventory and cost of goods sold.
 - LO5 Discuss the factors affecting a company's choice of inventory method.
 - LO6 Identify and supplement IFRS disclosures and the effect of IFRS requirements on net income.
 - LO7 Calculate the metrics used by analysts to measure a company's investment in inventories.
 - LO8 Determine ending inventory using the dollar-volume inventory method.





Inventory Measurement at Ford Motor Company

A recent article in the financial section of your local newspaper reported on the labor negotiations between Ford Motor Company and the United Auto Workers. When you showed the article to a friend, he said, "I'll bet Ford uses LIFO to value its inventories. That way they can report lower profits and give them an edge in the negotiations." This aroused your curiosity and led you to download from the Internet Ford's most recent financial statements, which contained the following disclosure note:

Note 6. Inventories

Inventories at December 31 were as follows (in millions):

| | 2004 | 2003 |
|--|-----------------|-----------------|
| Raw materials, work in process, and supplies | \$ 3,988 | \$3,813 |
| Finished products | 8,788 | 6,938 |
| Total inventories | <u>\$12,776</u> | <u>\$10,751</u> |

Inventories are stated at the lower of cost or market. About one-fourth of inventories were determined under the last-in, first-out (LIFO) method. The cost of the remaining inventories were determined primarily by the first-in, first-out (FIFO) method. If the FIFO method had been used instead of LIFO, inventories would have been higher by \$1,007 million and \$506 million at the end of 2004 and 2003, respectively.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your responses to the solution provided at the end of the chapter.

1. What inventory methods does Ford use to value its inventories? Is this permissible according to GAAP? (page 388)
2. What is the purpose of the disclosure information that reports what LIFO inventories would have been if valued at FIFO? (page 370)
3. Is your friend correct in his assertion that by using LIFO, Ford was able to report lower profits in 2004? (page 376)

PART A RECORDING AND MEASURING INVENTORY

Inventory refers to the assets a company intends to sell in the normal course of business. In a production environment, such as a factory, inventory includes the materials used in production, the partially completed components, and the finished goods. For example, at Apple's computer factory in Cupertino, California, inventory includes the computer chips and memory modules that will go into computers produced later. The computers used by Apple to maintain its accounting system, however, are classified and accounted for as plant and equipment. Similarly, the stocks and bonds a securities dealer holds for sale are inventory, whereas Apple would classify the securities it holds as investments.

Proper accounting for inventories is essential for manufacturing, wholesale, and retail companies (enterprises that earn revenue by selling goods). Inventory usually is one of the most valuable assets listed in the balance sheet for these firms. Cost of goods sold—the expense recorded when inventory is sold—typically is the largest expense in the income statement. For example, a recent balance sheet for Sears Roebuck Corporation reported inventory of \$2.779 billion, which represented 9% of total assets. The company's income statement reported cost of goods sold of \$12 billion representing 67% of all expenses.

In this and the following chapter we discuss the measurement and reporting issues involving inventory, an asset, and the related expense, cost of goods sold. Inventory includes quantities of goods acquired, manufactured, or in the process of being manufactured. The inventory amount in the balance sheet at the end of an accounting period represents the cost of the inventory still on hand, and cost of goods sold in the income statement represents the cost of the inventory sold during the period. We discuss the principles and matching principle that offer guidance for measuring inventory and cost of goods sold, but as we will see in this and the next chapter, it's initially difficult to measure inventory (cost of goods sold) at the exact cost of the actual physical quantities on hand (sold). Fortunately, accountants can use several techniques to approximate the desired result and satisfy our measurement objective.

Types of Inventory

MERCHANDISING INVENTORY

Wholesale and retail companies purchase goods that are primarily in finished form. These companies are intermediaries in the process of moving goods from the manufacturer to the end-user. They often are referred to as merchandising companies and their inventory as merchandise inventory. The cost of merchandise inventory includes the purchase price plus any other costs necessary to get the goods in condition and location for sale. We discuss the concept of condition and location and the types of costs that typically constitute inventory costs in this chapter.

MANUFACTURING INVENTORIES

Unlike merchandising companies, manufacturing companies actually produce the goods they sell to wholesalers, retailers, or other manufacturers. Inventory for a manufacturer consists of (1) raw materials, (2) work in process, and (3) finished goods. Raw materials inventory is the cost of components purchased from other manufacturers that will become part of a finished product. For example, Apple's raw materials inventory includes semiconductors, circuit boards, plastic, and glass that go into the production of personal computers.

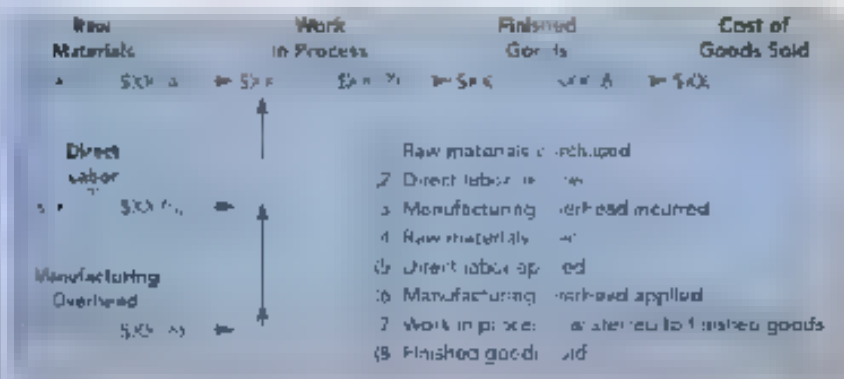
Work-in-process inventory refers to the products that are not yet complete. The cost of work in process includes the cost of raw materials used in production, the cost of labor that can be directly traced to the goods in process, and an allocated portion of other manufacturing costs, called *manufacturing overhead*. Overhead costs include electricity and other utility costs to operate the manufacturing facility, depreciation of manufacturing equipment, and many other manufacturing costs that cannot be directly linked to the production of specific goods. Once the manufacturing process is completed, these costs that have accumulated in work in process are transferred to finished goods.

Manufacturing companies generally disclose either in a note or directly in the balance sheet, the dollar amount of each inventory category. For example, Kmart Corporation's 2004 disclosure of its inventory categories was shown on page 47. Sara Lee Corporation reports inventory categories directly in the balance sheet, as illustrated in Graph 8-1.

The inventory accounts and the flows of a typical manufacturing company are shown in Figure 8-1 (Figure 8-2). The flow of raw materials into the plant, labor applied, and manufacturing overhead applied flow into work in process and then to finished goods. When the goods are sold, the cost of the goods flows to cost of goods sold.

GRAPH 8-1 Inventories Disclosure: Sara Lee Corporation

| Balance Sheet | | |
|------------------------|----------------|----------------|
| (\$ in millions) | | |
| | 2004 | 2003 |
| Current assets: | | |
| Inventories: | | |
| finished goods | \$1,421 | \$1,871 |
| work in process | 397 | 405 |
| materials and supplies | 48 | 489 |
| Total | <u>\$1,866</u> | <u>\$2,765</u> |



GRAPH 8-2

Inventory Components and Cos. Flow for a Manufacturing Company

As each of the inventory components are placed or removed from one of the accounts, another

We focus here primarily on merchandising companies (wholesalers and retailers). Still, most of the accounting principles and procedures discussed here also apply to manufacturer companies. The unique problems involved with accumulating the direct costs of raw materials and labor and with allocating manufacturing overhead are addressed in managerial accounting textbooks.

Perpetual Inventory System

Accounting systems are used to record transactions involving inventory: the perpetual inventory system and the periodic inventory system. The perpetual system was introduced in Figure 2. The system is aptly termed perpetual because the account *inventory* is continuously adjusted for each change in inventory, whether it's caused by a purchase, a sale, or a return of merchandise by the company to its supplier (a *purchase return* for the buyer, a *sales return* for the seller). The cost of goods sold account, along with the inventory account, is adjusted each time goods are sold or are returned by a customer. This concept is applied in accounting. Wholesale Beverage Company for which inventory information is provided in Figure 8-1. This hypothetical company also will be used in the next several illustrations. An important feature of a perpetual system is that it is designed to track inventory quantities from their acquisition to their sale. If the system is accurate, it allows management to know how many goods are on hand on any date without having to take a physical count. (Because physical counts of inventory usually are made anyway, either at the end of the fiscal year or on a sample basis throughout the year, to verify that the perpetual system is

A perpetual inventory system continuously records both quantity and monetary cost.

ILLUSTRATION B-1 Perpetual Inventory System

The Lathridge Wholesale Beverage Company sells beer to retailers. The company began 2006 with 600 additional merchandise sales for the year, all on a credit basis. \$540,000. Lathridge uses one perpetual inventory system to keep track of its inventory quantities and their cost.

The following summary illustrates the company's inventory transactions for the Lathridge Company.

2006

| | | |
|---|---------|---------|
| Inventory | 600,000 | |
| Accounts payable | | 600,000 |
| To record the purchase of merchandise inventory | | |

2006

| | | |
|-----------------------------|---------|---------|
| Accounts receivable | 820,000 | |
| Sales revenue | | 820,000 |
| To record sales of alcohol | | |
| Cost of goods sold | 540,000 | |
| Inventory | | 540,000 |
| To record the cost of sales | | |

any purchases sold directly from producers and then sells them to retailers. The company began 2006 with a merchandise inventory of \$600,000 and a credit balance of \$600,000. The company's sales for the year were \$820,000. The company's cost of goods sold for the year was \$540,000. The company's ending inventory was \$60,000.

The following summary illustrates the company's inventory transactions for the Lathridge Company.

correctly tracking quantities. Differences between the quantity of inventory determined by the physical count and the quantity of inventory according to the perpetual system could be caused by system errors, theft, breakage, or spoilage. In addition to keeping up with inventory, a perpetual system also directly determines how many items are sold during a period.

You are probably familiar with the scanning mechanisms used at grocery store checkout counters. The scanners not only record the sale on the cash register but also can be used to track the sale of merchandise for inventory management purposes. For a company to use a perpetual inventory system to record inventory and cost of goods sold transactions, merchandise cost data also must be included on the system. That is, when merchandise is purchased/sold, the system must be able to record not only the addition/reduction in inventory quantity but also the addition/reduction in the *cost* of inventory.

A perpetual inventory system is one in which the inventory account is updated continuously.

A perpetual inventory system is one in which the inventory account is updated continuously.

The cost of goods sold account is used to record the cost of goods sold.

Periodic Inventory System

A periodic inventory system is not designed to track either the quantity or cost of merchandise inventory continuously. Instead, the ending inventory is made only periodically at the end of the accounting period. Merchandise purchases, purchase returns, purchase discounts, and freight on purchases plus freight less returns and discounts equals net purchases. The cost of goods sold is determined at the end of the period by combining the net purchases with the inventory account:

Beginning inventory + Net purchases - Ending inventory = Cost of goods sold

The cost of goods sold equation assumes that all inventory quantities not on hand at the end of the period were sold. This may not be the case if inventory items were either damaged or stolen. If damaged and stolen inventory are identified, they must be removed from beginning inventory or purchases before calculating cost of goods sold and then classified as a separate expense item.

Illustration B-2 looks at the periodic system using the Lathridge Wholesale Beverage Company example.

the Bridge Wholesale Beverage Company purchases soft drinks from producers and then sells them to retailers. The company began 2006 with merchandise inventory of \$120,000. During 2006 additional merchandise was purchased in an amount at a cost of \$600,000. All on account. Total sales for the year, all on account, totaled \$820,000. Letbridge uses a periodic inventory system. A physical count determined the cost of inventory at the end of the year to be

ILLUSTRATION 8-2 Periodic Inventory System

The following journal entries summarize the inventory transactions for 2006. If purchases are made on account, each individual transaction would already be recorded as follows:

| | | |
|--|---------|---------|
| 2006 | | |
| To Issues | 600,000 | |
| Accounts payable | | 600,000 |
| To record the purchase of new merchandise inventory. | | |
| 2006 | | |
| At Costs: receivable | 820,000 | |
| Sales revenue | | 820,000 |
| To record sales on account. | | |
| No entry is recorded for the cost of inventory sold. | | |

Because cost of goods sold isn't determined automatically and continuously by the periodic system, it must be determined indirectly after a physical inventory count. Cost of goods sold is then determined as follows:

| | |
|---|------------------|
| Beginning inventory | \$120,000 |
| Plus: Purchases | 600,000 |
| Cost of goods available for sale | 720,000 |
| Less: Ending inventory (per physical count) | 180,000 |
| Cost of goods sold | <u>\$540,000</u> |

The following journal entry combines the adjustment of cost of goods sold into a single expense account and updates the balance in the inventory account:

| | | |
|--------------------------|---------|---------|
| December 31, 2006 | | |
| Cost of goods sold | 540,000 | |
| Inventory (ending) | 180,000 | |
| Inventory (beginning) | | 120,000 |
| Purchases | | 600,000 |

To adjust inventory close the purchases account, and record cost of goods sold.

This entry adjusts the inventory account to the correct period-end amount, closes the temporary purchases account, and records the residual as cost of goods sold. Now let's compare the two inventory accounting systems.

A Comparison of the Perpetual and Periodic Inventory Systems

Beginning inventory plus net purchases during the period is the cost of goods available for sale. The main difference between a perpetual and a periodic system is that the periodic system calculates cost of goods available for sale between ending inventory and cost of goods sold periodically at the end of the period. In contrast, the perpetual system performs this calculation by decreasing inventory and increasing cost of goods sold perpetually each time a sale occurs.

LO1

The impact on the financial statements of choosing one system over the other is generally not significant. The choice between the two approaches usually is motivated by a number of practical considerations as well as the comparative costs of implementation. Perpetual systems can provide more information about the dollar amounts of inventory levels on a continuous basis. They also facilitate the preparation of interim financial statements by providing accurate information without the necessity of a physical count of inventory.

On the other hand, a perpetual system may be more expensive to implement than a periodic system. This is particularly true for inventories consisting of large numbers of low-cost items. Perpetual systems are more workable with inventories of high-cost items such as construction equipment or automobiles. However, with the help of computers and electronic sales devices such as cash register scanners, the perpetual inventory system is now available to many small businesses that previously could not afford them and is economically feasible for a broader range of inventory items than before.

The periodic system is less costly to implement during the period but requires a physical count before ending inventory and cost of goods sold can be determined. This makes the preparation of interim financial statements more costly unless an inventory estimation technique is used.² And, perhaps most importantly, the inventory monitoring features provided in a perpetual system are not available. However, it is important to remember that a perpetual system involves the tracking of both inventory quantities and costs. Many companies that determine costs only periodically employ systems to constantly monitor inventory quantities.

What Is Included in Inventory?

PHYSICAL QUANTITIES INCLUDED IN INVENTORY

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Regardless of the system used, the measurement of inventory and cost of goods sold begin with determining the physical quantities of goods. Typically, determining the physical quantity that should be included in inventory is a simple matter because it consists of items in possession of the company. However, in some situations the identification of items that should be included in inventory is more difficult. Consider, for example, goods in transit, goods on consignment, and sales returns.

Goods in Transit. At the end of a reporting period, it's important to ensure a proper inventory cutoff. This means determining the ownership of goods that are in transit between the company and its customers as well as between the company and its suppliers. For example, in December 2006, the Luthridge Wholesale Beverage Company sold goods to the Jabbar Company. The goods were shipped on December 29, 2006, and arrived at Jabbar's warehouse on January 3, 2007. The fiscal year-end for both companies is December 31.

Should the merchandise shipped to Jabbar be recorded as a sale by Luthridge and a purchase by Jabbar in 2006 and thus included in Jabbar's 2006 ending inventory? Should the shipping of the merchandise be delayed until 2007 and the merchandise be included in Luthridge's 2006 ending inventory? The answer depends on who owns the goods at December 31. Ownership depends on the terms of the agreement between the two companies. If the goods are shipped f.o.b. (free on board) shipping point, then legal title to the goods changes hands at the point of shipment when the seller delivers the goods to the common carrier (for example, a trucking company), and the purchaser is responsible for shipping costs and transit insurance. In that case, Luthridge records the sale and inventory reduction in 2006 and Jabbar records the purchase and includes the goods in its 2006 ending inventory even though the company is not in physical possession of the goods on the last day of the fiscal year.

On the other hand, if the goods are shipped f.o.b. destination, the seller is responsible for shipping and legal title does not pass until the goods arrive at their destination (the owner's location). In our example, if the goods are shipped f.o.b. destination, Luthridge includes the merchandise in its 2006 ending inventory and the sale is recorded in 2007. Jabbar records the purchase in 2007.

²In Chapter 4 we discuss inventory estimation techniques that assist the difficulty of a physical count in determining ending inventory and cost of goods sold.

The Colorado Wholesale Beverage Company purchases soft drinks from a distributor and then sells them to restaurants. The company began 2006 with merchandise inventory of \$20,000 on hand. During 2006 additional merchandise is purchased on account at a cost of \$600,000. Colorado's suppliers offer credit terms of 1/10, net 30. No discounts were taken. Colorado uses the net method to record purchase discounts. All purchases are made on a shipping point basis. Freight charges are paid by Colorado, billed \$16,000. Colorado has a net sales account of \$1,500,000. Returns and allowances on credit sales are \$25,000. The gross profit on goods sold is 25%. The ending merchandise inventory remained on hand at the end of the year.

The following transactions are recorded in summary form according to both the perpetual and periodic inventory systems as follows:

| Perpetual System | | | Periodic System | | |
|---------------------|--------|-----|-----------------------------|------|-------|
| | | | Purchases | | |
| Inventory 1/1 | 20,000 | 508 | Purchases (Gross) | 508 | |
| Accounts payable | | 508 | Accounts payable | | 508 |
| | | | Freight | | |
| Inventory | 16 | | Freight in | 16 | |
| Cash | | 16 | Cash | | 16 |
| | | | Returns | | |
| Accounts payable | 20 | | Accounts payable | 20 | |
| Inventory | | 20 | Purchases returns | | 20 |
| | | | Sales | | |
| Accounts receivable | 830 | | Accounts receivable | 830 | |
| Sales revenue | | 830 | Sales revenue | | 830 |
| Cost of goods sold | 550 | | Inventory | | |
| Inventory | | 550 | | | |
| | | | End of period | | |
| Inventory | | | Cost of goods sold | 550 | |
| | | | Inventory ending | 54 | |
| | | | Purchase net | 20 | |
| | | | Inventory beginning | | 20 |
| | | | Purchases | | 508 |
| | | | Freight | | 16 |
| | | | Supporting Schedule: | | |
| | | | Cost of goods sold | | |
| | | | Beginning inventory | | \$ 20 |
| | | | Purchases | 508 | |
| | | | Less: Returns | (20) | |
| | | | Plus: Freight | 16 | |
| | | | Net purchases | 504 | |
| | | | Cost of goods available | 524 | |
| | | | Less: Ending inventory | 54 | |
| | | | Cost of goods sold | 550 | |

Inventory Cost Flow Assumptions

Regardless of whether the perpetual or periodic system is used, it's necessary to assign dollar amounts to the physical quantities of goods sold and goods remaining in ending inventory. Unless a portion of inventory is specifically identified and traced through the system, assigning dollar amounts is accomplished by making an assumption regarding how goods (and their associated cost) flow through the system. We examine the common cost flow assumptions next. In previous illustrations, dollar amounts of the cost of goods sold, and the cost of ending inventory

We're assuming, of course, that the units are homogeneous and that the units are acquired at different costs and which remains in inventory. Illustration 8-3.

ILLUSTRATION 8-3 COST FLOW

Beginning inventory
plus purchases
minus ending inventory
equals cost of goods sold

The Blowing Company began 2006 with 4,000 units of product. During 2006, it purchased 7,000 units of product. The cost of the beginning inventory is composed of 4,000 units purchased at \$5.50 per unit. The cost of the purchases during 2006 were as follows:

| Purchases | | | |
|------------------|-------|------------|------------|
| Date of Purchase | Units | Unit Cost* | Total Cost |
| Jan. 7 | 1,000 | \$6.00 | \$6,000 |
| Mar. 22 | 3,000 | 7.00 | 21,000 |
| Oct. 5 | 3,000 | 7.50 | 22,500 |
| Total | 7,000 | | \$49,500 |

| Sales | |
|--------------|-------|
| Date of Sale | Units |
| Jan. 10 | 2,000 |
| Apr. 5 | 1,000 |
| Nov. 20 | 3,500 |
| Total | 6,500 |

*Includes purchase price and cost of freight.

As the data show, 7,000 units were purchased during 2006 at various prices and 6,500 units were sold. What is the cost of the 6,500 units sold? If all units, including beginning inventory, were purchased at the same price, then the answer would be simple. However, this rarely is the case.

The year started with 4,000 units, 7,000 units were purchased, and 6,500 units were sold. This means 4,500 units remain in ending inventory. This allocation of units available for sale is depicted in Graphic 8-3.

GRAPHIC 8-3

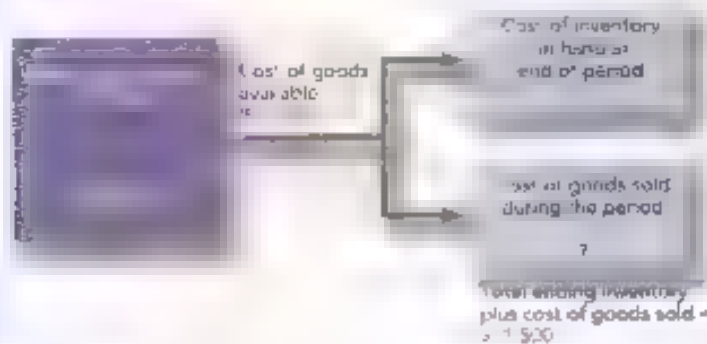
Allocation of Units Available



If a periodic system is used, what is the cost of the 4,500 units in ending inventory? In other words, which of the 11,000 (4,000 + 7,000) units available for sale were sold? Are they the more expensive ones bought toward the end of the year, or the less costly ones acquired earlier in the year? Using the numbers given, let's consider the question as follows:

| | |
|---|----------|
| Beginning inventory (4,000 units @ \$5.50) | \$22,000 |
| Plus: Purchases (7,000 units @ various prices) | 49,500 |
| Cost of goods available for sale (11,000 units) | \$71,500 |
| Less: Ending inventory (4,500 units @ ?) | ? |
| Cost of goods sold (6,500 units @ ?) | ? |

The \$7,500 in cost of goods available for sale must be allocated to ending inventory and cost of goods sold. The allocation decision is depicted in Graphic 8-4.



Graphic 8-4
Allocation of Cost of Goods Available

Let's turn our attention now to the various inventory methods that can be used to achieve this allocation.

SPECIFIC IDENTIFICATION

It is sometimes possible for each unit sold during the period or each unit on hand at the end of the period to be matched with its actual cost. Actual costs can be determined by reference to the invoice representing the purchase of the item. This method is used frequently by companies selling unique, expensive products with low sales volume which makes it relatively easy and economically feasible to associate each item with its actual cost. For example, an automobile has unique serial numbers that can be used to match a specific auto with the invoice identifying the actual purchase price.

The specific identification method, however, is not feasible for many types of products simply because items are not uniquely identifiable or because it is too costly to match a specific purchase price with each item sold or each item remaining in ending inventory. Most companies use cost flow methods to determine cost of goods sold and ending inventory. Cost flow methods are based on assumptions about how inventory might flow in and out of a company. However, it is important to note that the actual flow of a company's inventory does not have to correspond to the cost flow assumed. The various motivating factors that influence a company's choice among alternative methods are discussed later in this chapter. We now explore the three most common cost flow methods: average cost, first-in, first-out (FIFO), and last-in, first-out (LIFO).

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AVERAGE COST

The average cost method assumes that cost of goods sold and ending inventory consist of a portion of all the goods available for sale. The average unit cost is computed—goods sold or ending inventory is not unique as a average of all various units of purchases during the period and an average unit cost is then multiplied by the number of units acquired in the various purchases.

The average cost method assumes that items are sold and a portion of ending inventory is not unique as a average of all various units of purchases during the period and an average unit cost is then multiplied by the number of units acquired in the various purchases.

Periodic Average Cost. In a periodic inventory system, the weighted average is calculated at the end of the period as follows:

$$\text{Weighted-average unit cost} = \frac{\text{Cost of goods available for sale}}{\text{Quantity available for sale}}$$

The calculation of average cost is demonstrated in Illustration 8-5A using data from Illustration 8-5.

Cost of goods sold also could be determined directly by multiplying the weighted-average unit cost of \$6.50 by the number of units sold: $\$6.50 \times 6,500 = \$42,250$.

Perpetual Average Cost. The weighted-average unit cost in a perpetual inventory system becomes a moving-average unit cost. A new weighted-average unit cost is calculated

ILLUSTRATION 8-5A**Average Cost—
Periodic Inventory
System**

| | |
|---|-----------------|
| Beginning inventory (4,000 units @ \$5.50) | \$22,000 |
| Plus: Purchases (7,000 units @ various prices) | 49,500 |
| Cost of goods available for sale (11,000 units) | 71,500 |
| Less: Ending inventory (determined below) | (29,250) |
| Cost of goods sold (6,500 units) | <u>\$42,250</u> |
| Cost of Ending Inventory | |
| Weighted-average unit cost | \$7.500 |
| 1,000 units | \$6.50 |
| 4,500 units @ \$6.50 = | \$29,250 |

| | | |
|---------------------|------------------------------|-----------|
| Beginning inventory | 4,000 units @ \$5.50 | \$22,000 |
| Jan. 10 purchase | 7,000 units @ various prices | 49,500 |
| Jan. 17 purchase | 1,000 units @ \$6.00 | \$6,000 |
| Mar. 22 purchase | 3,000 units @ \$7.00 | \$21,000 |
| Apr. 15 purchase | 3,000 units @ \$7.50 | \$22,500 |
| Oct. 15 purchase | 3,000 units @ \$6.80 | \$20,400 |
| Nov. 20 purchase | 3,000 units @ \$6.80 | \$20,400 |
| Total | 27,000 units | \$141,800 |

additional inventory is purchased,

each time additional units are purchased. The new average is determined after each purchase by summing the cost of the previous inventory balance and the cost of the new purchase and dividing this new total cost by the number of units available for sale by the number of units available (the inventory units that are available for sale). This average is then used to compute units sold before the next purchase is made. The moving average concept is applied in Illustration 8-5B.

ILLUSTRATION 8-5B Average Cost—Perpetual Inventory System

| Date | Purchased | Sold | Balance |
|---------------------|--|---------------------------|---|
| Beginning inventory | 4,000 @ \$5.50 = \$22,000 | | 4,000 @ \$5.50 = \$22,000 |
| Jan. 10 | | 2,000 @ \$5.50 = \$11,000 | 2,000 @ \$5.50 = \$11,000 |
| Jan. 17 | 1,000 @ \$6.00 = \$6,000 | | \$11,000 + \$6,000 = \$17,000
2,000 + 1,000 = 3,000 units |
| | $\frac{\$17,000}{3,000 \text{ units}} = \$5.667/\text{unit}$ | | |
| Mar. 22 | 3,000 @ \$7.00 = \$21,000 | | \$17,000 + \$21,000 = \$38,000
3,000 + 3,000 = 6,000 units |
| | $\frac{\$38,000}{6,000 \text{ units}} = \$6.333/\text{unit}$ | | |
| Apr. 15 | | 1,500 @ \$6.333 = \$9,500 | 4,500 @ \$6.333 = \$28,500 |
| Oct. 15 | 3,000 @ \$7.50 = \$22,500 | | \$28,500 + \$22,500 = \$51,000
4,500 + 3,000 = 7,500 units |
| | $\frac{\$51,000}{7,500 \text{ units}} = \$6.80/\text{unit}$ | | |
| Nov. 20 | | 3,000 @ \$6.80 = \$20,400 | 4,500 @ \$6.80 = \$30,600 |
| | Total cost of goods sold | = \$40,900 | |

On January 17 the new average of \$5.667 (rounded) is calculated by dividing the \$17,000 cost of goods available (\$11,000 from beginning inventory + \$6,000 purchased on Jan. 17) by the 3,000 units available (2,000 units from beginning inventory + 1,000 units acquired on January 17). The average is updated to \$6.333 (rounded) with the March 22 purchase. The 1,500 units sold on April 15 are then costed at the average cost of \$6.333.

Periodic average cost and perpetual average cost generally produce different allocations to cost of goods sold and ending inventory.

The first-in, first-out (FIFO) method assumes that units sold are the first units acquired.

FIRST-IN, FIRST-OUT (FIFO)

The first-in, first-out (FIFO) method assumes that units sold are the first units acquired. Beginning inventory is sold first, followed by purchases during the period in the chronological

and order of their acquisition. In our Illustration 8-5, 500 units were sold during 2006. Apply the FIFO method to the 4,000 units beginning inventory, the 3,000 units purchased on January 17, and 1,500 of the 3,000 units from the March 22 purchase. By default, ending inventory consists of the most recently acquired units. In this case, the 4,500 units in ending inventory consist of the 3,000 units purchased on October 5, and 1,500 of the 3,000 units purchased on March 22. Graphically, the flow is as follows:

Units Available

| | | |
|--------|--------|-----------------------------------|
| Jan 1 | 4,000 | } 4,500 units sold |
| Jan 17 | 3,000 | |
| Mar 22 | 1,500 | |
| Mar 22 | 1,500 | } 4,500 units in ending inventory |
| Oct 5 | 3,000 | |
| Total | 11,000 | |

First in, first out (FIFO) flow: The units that were first acquired are the first to be sold.

FIFO flow

Periodic FIFO. Recall that we determine physical quantities on hand in a periodic inventory system by taking a physical count. Counting the 4,500 units in ending inventory this way immediately gives us the cost of goods sold as well. Using the numbers from our Illustration 8-5, we determine cost of goods sold to be \$38,500 by subtracting the \$33,000 ending inventory from \$71,500 cost of goods available for sale as shown in Illustration 8-5C.

| | |
|---|-----------------|
| Beginning inventory (4,000 units @ \$5.50) | \$22,000 |
| Plus: Purchases (7,000 units @ various prices) | 49,500 |
| Cost of goods available for sale (11,000 units) | 71,500 |
| Less: Ending inventory (determined below) | 33,000 |
| Cost of goods sold (6,500 units) | <u>\$38,500</u> |

ILLUSTRATION 8-5C

FIFO—Periodic Inventory System

Cost of Ending Inventory:

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|-------|-----------|-----------------|
| Mar 22 | 1,500 | \$7.00 | \$10,500 |
| Oct 5 | 3,000 | 7.50 | 22,500 |
| Total | 4,500 | | <u>\$33,000</u> |

Of course, the 6,500 units sold could be costed directly as follows:

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|-------|-----------|-----------------|
| Begin. Inv. | 4,000 | \$5.50 | \$22,000 |
| Jan 17 | 1,000 | 6.00 | 6,000 |
| Mar 22 | 1,500 | 7.00 | 10,500 |
| Total | 6,500 | | <u>\$38,500</u> |

Perpetual FIFO. The same ending inventory and cost of goods sold amounts are always obtained in a perpetual inventory system as in a periodic inventory system when FIFO is used. This is because the same units and costs are first in and first out, whether cost of goods sold is determined as each sale is made or at the end of the period as a residual amount. The operation of FIFO in a perpetual system is shown in Illustration 8-5D.

LAST-IN, FIRST-OUT (LIFO)

As an alternative (LIFO) method assumes that the units sold are the most recent units purchased. In our illustration, the 6,500 units assumed sold would be the 6,500 units acquired

Last in, first out (LIFO) flow: The units that were last acquired are the first to be sold.

ILLUSTRATION 8-5D

FIFO—Perpetual Inventory System

| Date | Purchased | Sold | Balance |
|--------------------------|---------------------------|---|---|
| Beginning Inventory | 4,000 @ \$5.50 = \$22,000 | | 4,000 @ \$5.50 = \$22,000 |
| Jan. 10 | | 2,000 @ \$5.50 = \$11,000 | 2,000 @ \$5.50 = \$11,000 |
| Jan. 17 | 1,000 @ \$6.00 = \$6,000 | | 2,000 @ \$5.50
1,000 @ \$6.00 \$17,000 |
| Mar. 22 | 3,000 @ \$7.00 = \$21,000 | | 2,000 @ \$5.50
1,000 @ \$6.00
3,000 @ \$7.00 \$38,000 |
| Apr. 15 | | 10 @ \$5.50 = \$5,250 | 500 @ \$5.50
1,000 @ \$6.00 \$29,750 |
| Oct. 15 | 3,000 @ \$7.50 = \$22,500 | | 3,000 @ \$7.00
500 @ \$5.50
1,000 @ \$6.00 \$52,250 |
| Nov. 20 | | 4 @ \$5.50
10 @ \$6.00
10 @ \$7.00 \$19,250 | 1,500 @ \$7.00
3,000 @ \$7.50 \$23,000 |
| Total cost of goods sold | | = \$39,500 | |

most recently: the 1,000 units acquired on October 15, the 3,000 units acquired on March 22, and 500 of the 1,000 units purchased on January 17. Ending inventory, then, consists of the units acquired first, in this case, the 4,000 units from beginning inventory and 500 of the 1,000 units purchased on January 17. Graphically, the flow is as follows:

Ending inventory applying LIFO consists of the items acquired first.

LIFO flow

Units Available

| | | |
|---------|--------|---------------------------------|
| BI | 4,000 | 4,500 units in ending inventory |
| Jan. 17 | 500 | |
| Jan. 17 | 500 | 5,500 units sold |
| Mar. 22 | 3,000 | |
| Oct. 15 | 1,000 | |
| Total | 11,000 | |

Periodic LIFO. The cost of ending inventory (determined to be \$25,000, calculated below) by the LIFO assumption and using a periodic system is subtracted from cost of goods available for sale to arrive at the cost of goods sold of \$46,500 as shown in Illustration 8-5E.

ILLUSTRATION 8-5E

LIFO—Periodic Inventory System

| | |
|---|----------|
| Beginning inventory (4,000 units @ \$5.50) | \$22,000 |
| Plus: Purchases (7,000 units @ various prices) | 49,500 |
| Cost of goods available for sale (11,000 units) | 71,500 |
| Less: Ending inventory (determined below) | (25,000) |
| Cost of goods sold (6,500 units) | \$46,500 |

Cost of Ending Inventory:

| Date of Purchase | Units | Unit Cost | Total Cost |
|---------------------|-------|-----------|------------|
| Beginning inventory | 4,000 | \$5.50 | \$22,000 |
| Jan. 17 | 500 | 6.00 | 3,000 |
| Total | 4,500 | | \$25,000 |

The 6,500 sold could be costed directly as follows:

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|-------|-----------|------------|
| Jan. 17 | 500 | \$6.00 | \$ 3,000 |
| Mar. 22 | 3,000 | 7.00 | 21,000 |
| Oct. 15 | 3,000 | 7.50 | 22,500 |
| Total | 6,500 | | 546,500 |

Perpetual LIFO. The application of LIFO in a perpetual system is shown in Illustration 8-3F. Each time inventory is purchased or sold, the LIFO layers are adjusted. For example, in the March 22 purchase, we have three layers of inventory at different unit costs based in the chronological order of their purchase. When 1,500 units are sold on April 15, we assume they come from the most recent layer of 3,000 units purchased at \$7.00.

| Date | Purchased | Sold | Balance |
|--------------------------|-------------------------|---------------------------|-------------------------|
| Beginning inventory | | | 4,000 @ \$5.50 \$22,000 |
| Jan. 17 | 4,000 @ \$5.50 \$22,000 | | 4,000 @ \$5.50 \$22,000 |
| Mar. 22 | | 2,000 @ \$5.50 \$11,000 | 2,000 @ \$5.50 \$11,000 |
| Oct. 15 | 1,000 @ \$6.00 \$6,000 | | 2,000 @ \$5.50 \$11,000 |
| | | | 1,000 @ \$6.00 \$6,000 |
| Mar. 27 | 3,000 @ \$7.00 \$21,000 | | 2,000 @ \$5.50 \$11,000 |
| | | | 1,000 @ \$6.00 \$6,000 |
| | | | 3,000 @ \$7.00 \$21,000 |
| Apr. 15 | | 1,500 @ \$7.00 \$10,500 | 2,000 @ \$5.50 \$11,000 |
| | | | 1,000 @ \$6.00 \$6,000 |
| | | | 1,500 @ \$7.00 \$10,500 |
| Oct. 15 | 3,000 @ \$7.50 \$22,500 | | 2,000 @ \$5.50 \$11,000 |
| | | | 1,000 @ \$6.00 \$6,000 |
| | | | 1,500 @ \$7.00 \$10,500 |
| | | | 3,000 @ \$7.50 \$22,500 |
| Nov. 20 | | 3,000 @ \$7.50 = \$22,500 | 2,000 @ \$5.50 \$11,000 |
| | | | 1,000 @ \$6.00 \$6,000 |
| | | | 500 @ \$7.00 \$3,500 |
| Total cost of goods sold | | | |

ILLUSTRATION 8-3F

LIFO—Perpetual Inventory System

Notice that \$44,000 of the cost of goods available for sale is allocated to cost of goods sold in perpetual LIFO and \$44,000 of the ending inventory balance after the last purchase on November 20. In contrast, the periodic LIFO results in a \$44,000 cost of goods sold and a \$44,000 ending inventory balance. In a perpetual inventory system, we generally assume that ending inventory consists of the most recent goods sold different from the allocation method of applying LIFO in a periodic system. Periodic LIFO applies the last-in, first-out concept to total sales and total purchases only at the conclusion of the reporting period. Perpetual LIFO applies the same concept, but we assume that the period's ending inventory is the same as the beginning inventory.

For example, when 4,000 units are sold in January, perpetual LIFO costs those units at \$5.50, the beginning inventory unit cost. Periodic LIFO, however, would be applied at \$6.00. By the end of the year, enough purchases have been made that the beginning inventory would be assumed to remain intact, and the January 4,000 units sold would be costed at a more recent price.

Perpetual LIFO

Perpetual LIFO is a method of inventory costing in which the cost of goods sold and ending inventory are determined continuously as purchases and sales occur.

COMPARISON OF COST FLOW METHODS

The three cost flow methods are compared below assuming a periodic inventory system.

Comparison of cost flow methods

| | Average | FIFO | LIFO |
|--------------------|----------|----------|----------|
| Cost of goods sold | \$42,250 | \$30,500 | \$46,500 |
| Ending inventory | 29,250 | 17,000 | 29,000 |
| Total | \$71,500 | \$71,500 | \$71,500 |

Notice that the average cost method in this example produces amounts that fall in between the FIFO and LIFO amounts for both cost of goods sold and ending inventory. This will usually be the case. Whether it will be FIFO or LIFO that produces the highest or lowest value of cost of goods sold and ending inventory depends on the pattern of the actual unit cost changes during the period.

During periods of generally rising unit costs as in our example, FIFO results in a lower cost of goods sold and higher ending inventory because the lower costs of the earlier purchases are assumed sold. LIFO cost of goods sold will include more recent (higher) unit purchases, and the higher-cost LIFO ending inventory includes more recent (higher) unit purchases, which results in a higher ending inventory than LIFO. If ending inventory includes the lower costs of the earlier purchases, conversely, if costs are declining, then FIFO will result in a higher cost of goods sold and lower ending inventory than LIFO.⁶

Each of the three methods is permissible according to generally accepted accounting principles and quantity surveyors will usually be allowed to use the same method for all inventory. For example, International Paper Company uses LIFO for its raw materials and finished pulp and paper products and FIFO, LIFO, and average cost methods for other inventories. Because of the importance of inventory and the possibility of earning a profit of different methods of the financial statements, a company must disclose in a disclosure note the method it uses. The chapter's appendix includes an example of this disclosure for Ford Motor Company, and you will encounter additional examples later in the chapter.

Graphic 6-3 shows the results of a survey of inventory methods used by 600 large public companies in 2003 and 1972.⁷ FIFO is the most popular method in both periods, but there has been a dramatic increase in the use of LIFO since the earlier period. Notice that the column total for the number of companies is greater than 600, indicating that many companies included in this sample do use multiple methods.

GRAPHIC 6-3
Inventory Cost Flow
Methods Used in
Practice

| | 2003 | | 1972 | |
|---------|----------------|----------------|----------------|----------------|
| | # of Companies | % of Companies | # of Companies | % of Companies |
| FIFO | 384 | 64% | 390 | 65% |
| LIFO | 24 | 4% | 150 | 25% |
| Average | 67 | 11% | 232 | 39% |
| Other* | 3 | 0% | 141 | 23% |
| Total | 478 | 79% | 923 | 100% |

*Other includes the specific identification method and miscellaneous less popular methods.

PERSPECTIVE

Inventory measurement techniques vary widely across different countries. In Mexico an acceptable technique is to use the latest purchase price to measure ending inventory. IFRSs do not permit the use of LIFO.

The differences between the various methods also hold when a perpetual inventory system is used.
Accounting Principles and Techniques: 2004 and 1974 (New York: New York: AICPA, 1984 and 1974).

DECISION MAKERS' PERSPECTIVE—Factors Influencing Method Choice

Why do firms motivate companies to choose one method over another? What factors have caused the increased popularity of LIFO? Choosing among alternative accounting methods is a complex issue. Often such choices are not made in isolation but in such a way that the combination of inventory cost flow assumptions, depreciation methods, pension assumptions, and other choices meet a particular objective. Also, many believe managers sometimes make these choices to maximize their own personal benefits rather than those of the company or its external constituents. But regardless of the motive, the impact on reported numbers is an important consideration in each choice of method. The inventory choice determines (a) how closely the firm's costs reflect the actual physical flow of inventory, (b) the timing of reported income and expense, and (c) how well costs are matched with associated revenues.

Physical Flow. If a company wanted to choose a method that most closely approximates the actual identification, then the actual physical flow of inventory in and out of the company motivates the choice of method.

For example, companies often attempt to sell the oldest goods in inventory first for some products. This certainly is the case with perishable goods such as many grocery items. The FIFO method best mirrors the physical flow in these situations. The average cost method might be used for liquids such as chemicals where items sold are taken from a pool of inventory acquired at different times and different prices. There are very few inventories that actually flow in a LIFO manner. It is important for you to understand that there is no requirement that companies choose an inventory method that approximates actual physical flow and few companies make the choice on this basis. In fact, as we discuss next, the effect of inventory method on income and income taxes is the primary motivation that motivates method choice.

Income Taxes and Net Income. If the unit cost of inventory changes during a period, inventory method choice can have a significant effect on the amount of income reported to the company to external parties and also on the amount of income taxes paid to the Internal Revenue Service (IRS) and state and local taxing authorities. Over the entire life of a company, the cost of goods sold for all years will equal actual costs of items sold regardless of the inventory method used. However, as we have discussed, different inventory methods can produce significantly different results in each particular year.

When prices rise and inventory quantities are not decreasing, LIFO produces a higher cost of goods sold, hence, lower net income than the other methods. The company's taxable income will report a lower taxable income using LIFO and lower taxes will be paid to the IRS. Taxes are not reduced permanently, only deferred. The reduced amount will be due to the taxing authorities when either the high cost of inventory or the quantity of inventory subsequently declines. However, we know from our discussion of the time value of money that it is advantageous to save a dollar today even if it must be paid back in the future. Recall from the recent survey results exhibited earlier that the popularity of LIFO increased significantly between 1980 and 1983. The major reason for this increase in popularity is attributable to high inflation increasing prices during 1970s, which motivated many companies to switch to LIFO in order to gain the tax benefit.

A corporation's taxable income comprises revenues, expenses (including cost of goods sold), and losses measured according to the regulations of the appropriate tax authority. Income before tax as reported in the income statement does not always equal taxable income. In some cases, differences are caused by the use of different measurement methods.² The IRS regulations, which determine federal taxable income, require that if a company uses LIFO to measure taxable income, the company also must use LIFO for external financial reporting. This is known as the LIFO conformity rule with respect to inventory methods.

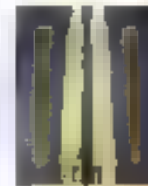


FIGURE 8.1

FIGURE 8.2

FIGURE 8.3

FIGURE 8.4

FIGURE 8.5

FIGURE 8.6

FIGURE 8.7

FIGURE 8.8

FIGURE 8.9

FIGURE 8.10

FIGURE 8.11

FIGURE 8.12

FIGURE 8.13

FIGURE 8.14

FIGURE 8.15

FIGURE 8.16

FIGURE 8.17

FIGURE 8.18

FIGURE 8.19

FIGURE 8.20

FIGURE 8.21

FIGURE 8.22

FIGURE 8.23

FIGURE 8.24

FIGURE 8.25

FIGURE 8.26

FIGURE 8.27

FIGURE 8.28

FIGURE 8.29

FIGURE 8.30

FIGURE 8.31

FIGURE 8.32

FIGURE 8.33

FIGURE 8.34

FIGURE 8.35

FIGURE 8.36

FIGURE 8.37

FIGURE 8.38

FIGURE 8.39

FIGURE 8.40

FIGURE 8.41

FIGURE 8.42

FIGURE 8.43

FIGURE 8.44

FIGURE 8.45

FIGURE 8.46

FIGURE 8.47

FIGURE 8.48

FIGURE 8.49

FIGURE 8.50

FIGURE 8.51

FIGURE 8.52

FIGURE 8.53

FIGURE 8.54

FIGURE 8.55

FIGURE 8.56

FIGURE 8.57

FIGURE 8.58

For the same reason, though, inventory costs in the balance sheet with LIFO generally are older because they reflect older purchase transactions. It is not uncommon for a company's LIFO inventory balance to be based on unit costs actually incurred several years earlier.

The distortion arising from LIFO ties also to the practice of liquidation as well. When an entity liquidates its inventory during a deflation, then, these unit costs are likely to be significantly higher than the current market value. If goods are sold during such a liquidation at a price below current selling prices, LIFO liquidation will have the effect of increasing net income. If goods are sold at prices higher (lower) than current costs, the paper profits (losses) caused by including out-of-date, low (high) unit costs of goods sold is referred to as the effect on income of liquidation of LIFO.

To illustrate this problem, consider the example in Illustration 8-6.

National Distributors, Inc., uses the LIFO inventory method. At the beginning of 2006, it had an inventory of 10,000 units that cost \$20 per unit. During 2006, 30,000 units were purchased and 45,000 units were sold.

Using a LIFO, cost of goods sold for 2006 consists of

| | |
|------------------------------|-----------|
| 30,000 units @ \$25 per unit | \$750,000 |
| 5,000 units @ \$20 per unit | \$100,000 |
| 35,000 | \$850,000 |

Therefore, unit costs of goods sold are 5,000 units from beginning inventory that have now been liquidated. If the company had purchased at least 35,000 units, no liquidation would have occurred. Thus, cost of goods sold would have been \$850,000 (35,000 units \times \$25 per unit) instead of \$850,000. The difference between these two cost of goods sold figures is \$150,000 (\$850,000 $-$ \$700,000). This is the before-tax income effect of the LIFO liquidation. Assuming a 40% income tax rate, the net effect of the liquidation is to increase net income by \$90,000 $(= \$150,000 \times (1 - .40))$. The lower the costs of the units liquidated, the more severe the effect on income.

A company must disclose in a note any material effect of LIFO liquidations on net income. For example, Graph 8-8 shows the disclosure that accompanies recent financial statements of Ethyl Corporation, a manufacturer of fuels and lubricants.

ILLUSTRATION 8-6
LIFO Liquidation

4 million
income
liquidation
the lower

8. Inventory (in part)

Under the LIFO method, the inventory quantities were reduced by 5,000 units during 2002. The effect of this liquidation on net income was an increase of \$150,000. The effect of this liquidation on net income was an increase of \$150,000. The effect of this liquidation on net income was an increase of \$150,000.

GRAPH 8-8
LIFO Liquidation
Disclosure—Ethyl
Corporation

In our illustration, National Distributors, Inc., would disclose that LIFO liquidations increased income by \$150,000 in 2006, assuming that this effect on income is considered material.

We have discussed several factors that influence companies in their choice of inventory method. A company could be influenced by the actual physical flow of its inventory, by the effect of inventory method on reported net income and the amount of income taxes payable, or by the desire to match a certain level of its expenses with revenues. You will recall that the direction of the change in unit costs determines the effect of using different methods of inventory measurement. While the United States has experienced persistent inflation for many years (increases in the general price-level), the prices of many goods and services have experienced periods of declining prices (for example, personal computers). ■

ADDITIONAL CONSIDERATION

LIFO Reserves

Many companies use LIFO for external reporting and income tax purposes but maintain their internal records using FIFO or average cost. The reasons for doing this might include (1) the high record-keeping costs of the LIFO method, (2) the existence of contractual agreements such as bonus or profit-sharing plans that prohibit the use of LIFO in the calculation of net income, and (3) the need for FIFO or average cost information for pricing decisions.

Generally, the conversion to LIFO is performed at the end of the period and not entered into the company's records. However, some companies enter the results of the conversion—the difference between the internal method and LIFO—directly into the accounts as a contra account to inventory. This contra account is called either the LIFO reserve or the LIFO allowance.

Occasionally, such companies revaluing inventory valued using the internal method use the LIFO reserve or allowance to arrive at LIFO inventory reported in the balance sheet. For example, General Motors recently reported the following in a note:

| Inventories (\$ in millions) | 2004 | 2003 |
|--------------------------------|-----------------|-----------------|
| Total inventories at FIFO | \$12,39 | \$12,541 |
| Less LIFO allowance | 1,442 | 1,581 |
| Total inventories at LIFO cost | <u>\$10,947</u> | <u>\$10,960</u> |

Note that this is merely another way of presenting the supplemental non-LIFO disclosures discussed previously.

CONCEPT REVIEW EXERCISE

INVENTORY COST FLOW METHODS

The Rogers Company began 2006 with an inventory of 4 million units of its principal product. These units cost \$5 each. The following inventory transactions occurred during the first six months of 2006:

| Date | Transaction |
|---------|--|
| Feb. 15 | Purchased, on account, 5 million units at a cost of \$6.50 each. |
| Mar. 20 | Sold, on account, 8 million units at a selling price of \$12 each. |
| Apr. 30 | Purchased, on account, 3 million units at a cost of \$7 each. |

On June 30, 2006, 12 million units were on hand.

Required

- Prepare journal entries to record the above transactions. The company uses a perpetual inventory system.
- Prepare the required adjusting entry—June 30, 2006, applying each of the following inventory methods.
 - Average
 - FIFO
 - LIFO
- Repeat requirement (2) assuming that the company uses a perpetual inventory system.

5. **FIN**

Prepare journal entries to record the above transactions. The company uses a periodic inventory system.

February 15

Purchases 5 million \$6.50

Accounts payable

To record the purchase of inventory

15 million units

12.5

3.5

March 20

Accounts receivable 18 million \$ 27

96

Sales revenue

96

Sales on account

No entry is recorded for the cost of inventory sold.

April 30

Purchases 5 million \$75

1

Accounts payable

75

To record the purchase of inventory.

Prepare the required adjusting entry on June 30, 2006, applying each method.

(\$ in millions)

| Date | Journal entry | Average | FIFO | LIFO |
|---------|--|---------|------|------|
| June 30 | Cost of goods sold (determined below) | 47.0 | 40.0 | 54.5 |
| | Inventory (ending—determined below) | 70.5 | 77.5 | 63.0 |
| | Inventory (beginning (10 million @ \$5)) | 50.0 | 50.0 | 50.0 |
| | Purchases (\$32.5 million + \$5 million) | 67.5 | 67.5 | 67.5 |

Calculation of Ending Inventory and Cost of Goods Sold:

1. Average

(\$ in millions)

| | |
|---|---------|
| Beginning inventory (10 million units @ \$5.00) | \$ 50.0 |
| Plus: Purchases (10 million units @ various prices) | 67.5 |
| Cost of goods available for sale (20 million units) | 117.5 |
| Less: Ending inventory (determined below) | 70.5 |
| Cost of goods sold | \$ 47.0 |

Cost of ending inventory

$$\text{Weighted-average unit cost} = \frac{\$117.5}{20 \text{ million units}} = \$5.875$$

$$2 \text{ million units} \times \$5.875 = \$71.5 \text{ million}$$

2. FIFO

| | |
|---|----------------|
| Cost of goods available for sale (20 million units) | \$117.5 |
| Less: Ending inventory (determined below) | (77.5) |
| Cost of goods sold | <u>\$ 40.0</u> |

3. LIFO

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|-------------------|-----------|---------------|
| April 30 | 5 million | \$7.00 | \$35.0 |
| Feb. 15 | 5 million | 6.50 | 32.5 |
| Beg. Inv. | 2 million | 5.00 | 10.0 |
| Total | <u>12 million</u> | | <u>\$77.5</u> |

4. FIFO

| | |
|---|----------------|
| Cost of goods available for sale (20 million units) | \$ 117.5 |
| Less: Ending inventory (determined below) | (63.0) |
| Cost of goods sold | <u>\$ 54.5</u> |

Cost of ending inventory

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|-------------------|-----------|-------------|
| Bag. Inv. | 10 million | \$5.00 | \$50.0 |
| Feb. 15 | 2 million | 6.50 | 13.0 |
| Total | <u>12 million</u> | | <u>63.0</u> |

7 Repeat requirement 4 assuming that the company uses a perpetual inventory system.

| | |
|-------------------------------------|----------------|
| February 15 | \$ in millions |
| Inventory 4 million units @ \$6.50 | 26.00 |
| Accounts payable | 32.0 |
| To record the purchase of inventory | |

| | |
|-------------------------------------|------|
| April 30 | |
| Inventory 8 million units @ \$5.50 | 44.0 |
| Accounts payable | 47.5 |
| To record the purchase of inventory | |

Journal Entries—March 20

| | Average | FIFO | LIFO |
|--|---------|------|------|
| Accounts receivable (8 million × \$12) | 96.0 | 96.0 | 96.0 |
| Sales revenue | 96.0 | 96.0 | 96.0 |
| To record sales on account | | | |
| Cost of goods sold (determined below) | 44.0 | 40.0 | 47.5 |
| Inventory (determined below) | 44.0 | 40.0 | |
| To record cost of goods sold | | | |

Calculation of Cost of Goods Sold

a. Average

Cost of goods sold

(S. except unit costs, in millions)

| Date | Purchased | Sold | Balance |
|-----------|---------------------|------|------------------------------|
| Bag. Inv. | 10 million @ \$5.00 | | 10 million @ \$5.00 = \$50.0 |
| Feb. 15 | 2 million @ \$6.50 | | \$50 + 32.5 = \$82.5 |
| | 582.5 | | |
| | 12 million units | | = \$5.50/unit |

Mar. 20 8 million @ \$5.50 = \$44.0

b. FIFO:

Cost of goods sold:

| Units Sold | Cost of Units Sold | Total Cost |
|----------------------|--------------------|------------|
| 8 million (from bag) | \$5.00 | \$40.0 |

c. LIFO:

Cost of goods sold:

| Units Sold | Cost of Units Sold | Total Cost |
|-----------------------------------|--------------------|---------------|
| 5 million (from Feb. 15 purchase) | \$6.50 | \$32.5 |
| 3 million (from bag, inventory) | 5.00 | 15.0 |
| <u>8 million</u> | | <u>\$47.5</u> |

DECISION MAKERS' PERSPECTIVE

Inventory Management

Managers closely monitor inventory levels to (1) ensure that the inventories needed to run operations are available, and (2) hold the cost of ordering and carrying inventories to the lowest possible level.¹² Unfortunately, these objectives often conflict with one another. Companies must maintain sufficient quantities of inventory to meet customer demand. However, maintaining inventory is costly. Fortunately, a variety of tools are available, including computerized inventory control systems and the outsourcing of inventory component production, that balance these conflicting objectives.¹³

A just-in-time (JIT) system is another valuable technique that many companies have adopted to assist them with inventory management. JIT is a system used by a manufacturer to coordinate production with suppliers so that raw materials or components arrive just as they are needed in the production process. Have you ever ordered a personal computer from Dell Inc.? If so, the PC you received was not manufactured until you placed your order, and many of the components used in the production of your PC were not even acquired by Dell until then as well. This system enables Dell to maintain relatively low inventory balances. At the same time, the company's efficient production techniques, along with its excellent relationship with suppliers ensuring prompt delivery of components, enables Dell to quickly address customer demand. In its January 28, 2006 fiscal year-end financial statements, Dell reported an inventory balance of \$459 million. With this relatively low investment in inventory, Dell was able to generate over \$49 billion in sales revenue. To appreciate the advantage it provides, compare these numbers with Hewlett-Packard (HP), a company that includes among its wide variety of technology products. For its fiscal year ended October 31, 2005, HP reported product revenue of \$54 billion. However, to achieve this level of sales, its investment in inventory was over \$7 billion.

It is important for a financial analyst to evaluate a company's effectiveness in managing inventory. As we discussed in Chapter 5, one key to profitability is how well a company manages its assets. This evaluation is influenced by the company's inventory method choice. Choice of inventory method is an important and complex management decision. The factors affecting this decision were discussed in a previous section. The inventory method also affects the analysis of a company's liquidity and profitability by investors, creditors, and financial analysts. Analysts must make adjustments when evaluating companies using different inventory methods. During periods of rising prices, we would expect a company using FIFO to report higher income than a LIFO or average cost company. If one of the companies being analyzed uses LIFO, precise adjustments can often be made using supplemental disclosures provided by many LIFO companies. Recall that the LIFO conformity rule was liberalized to permit LIFO users to report in a note the effect of using a method other than LIFO for inventory valuation.

For example, the disclosure note exhibited in Graphic 8-6 on page 370 reveals that Alcoa uses both the LIFO and average-cost inventory methods with 46% of its inventories valued using LIFO. Alcoa, Inc., Alcoa's major competitor, values all of its inventory using the LIFO method. Similar supplemental values are disclosed by companies for 1998 and 1999 to 2005 and 2006.



Graphic 8-6
Aluminum Inventory
Aluminum inventory is a significant asset for many companies. The image shows two large aluminum ingots, which are a common form of inventory for companies in the aluminum industry.

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¹² See, for example, *Financial Accounting*, 10th Edition, Chapter 10, "Inventory," and *Financial Accounting*, 10th Edition, Chapter 11, "Cost of Sales."

¹³ These items are beyond the scope of this text.

Financial Accounting, 10th Edition, Chapter 10, "Inventory," and *Financial Accounting*, 10th Edition, Chapter 11, "Cost of Sales."

| | Alcoa, Inc. | | Alcan, Inc. | |
|--------------------------|-------------|----------|-------------|----------|
| | 2003 | 2002 | 2003 | 2002 |
| Balance sheets | | | | |
| Inventories | \$ 2,524 | \$ 2,414 | \$ 1,706 | \$ 1,587 |
| Income statements | | | | |
| Net sales | 21,504 | 20,351 | 13,640 | 12,296 |
| Cost of goods sold | 17,138 | 16,327 | 10,802 | 9,714 |

We can convert Alcoa's inventory and cost of goods sold to a 100% average cost basis for comparing the two companies by using the information provided in Graphic 8-6. Inventories recorded at LIFO were lower by approximately \$558 million at December 31, 2003, and \$514 million at December 31, 2002, than if they had been valued at average cost.

| | 2003 | 2002 |
|---------------------------------|---------|---------|
| Inventories (as reported) | \$2,524 | \$2,414 |
| Add: conversion to average cost | 558 | 514 |
| Inventories (100% average cost) | \$3,082 | \$2,928 |

Cost of goods sold for 2003 would have been \$44 million lower had Alcoa used average cost instead of LIFO. While beginning inventory would have been \$5.4 million higher, ending inventory also would have been higher by \$538 million. An increase in beginning inventory causes an increase in cost of goods sold, but an increase in ending inventory causes a decrease in cost of goods sold. Purchases are the same regardless of a company's valuation method, so if we had given Alcoa's 2003 a cost of goods sold of \$10,802 million, we would have used the average cost basis for its ending inventory.

We can now use the 100% average cost amounts to compare the two companies. Had cost of goods sold been only \$44 million lower, we would have had to adjust before calculating a gross profit ratio. As we do, our ratio would be the same as the ratio computed using the 100% average cost amounts.

The important profitability indicator using cost of goods sold is gross profit or gross margin, which is the other important relationship between net sales revenue and cost of goods sold. The gross profit ratio or gross margin is defined as follows:

$$\text{Gross profit ratio} = \frac{\text{Gross profit}}{\text{Net sales}}$$

The higher the ratio, the higher is the markup a company is able to achieve on its products. For example, a product that costs \$100 that is sold for \$150 provides a gross profit of \$50 (\$150 - \$100) and a gross profit ratio of 33% (\$50 ÷ \$150). If that same product can be sold for \$200, the gross profit increases to \$100 and the gross profit ratio increases to 50% (\$100 ÷ \$200) and more dollars are available to cover expenses other than cost of goods sold.

The 2003 gross profit, \$4.4 billion (net sales of \$21,504 million minus cost of goods sold of \$17,060 million), for Alcoa, using the 100% average cost amounts, is \$4,440 (\$21,504 - \$17,064) and the gross profit ratio is 21% (\$4,440 ÷ \$21,504). The ratio for Alcan also is 21% (\$13,640 - \$10,802) = \$2,838 ÷ \$13,640. The ratio for both companies is less than the industry average of 27%.

Monitoring this ratio over time can provide valuable insights. For example, a declining ratio could indicate that the company is unable to offset rising costs with corresponding increases in sales price, or that sales prices are declining without a commensurate increase in sales. In either case, the decline in ratio has important implications for future profitability.

Chapter 5 introduced an important ratio—the inventory turnover ratio—which indicates how often a company's inventory is sold and replaced during a reporting period. The ratio shows the number of times the average inventory balance is sold during a reporting period. The more frequently a business is able to sell or turn over its inventory, the lower its average level of inventory must be for a given level of sales. Usually, the higher the ratio, the more profitable a company will be. Monitoring the inventory turnover ratio over time can highlight potential problems. A declining ratio generally is unfavorable and could be caused by the presence of obsolete or slow-moving products, or poor marketing and sales efforts.

Recall that the ratio is computed as follows:

$$\text{Inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

We can divide the inventory turnover ratio of 365 days to compute the average days in inventory, which indicates the average number of days it normally takes to sell inventory. For Alcoa, the inventory turnover ratio for 2003 is $5.89 \div 7.094 = 163.082 \div 2.928 = 55.7$ and the average days inventory is 64 days ($365 \div 5.69$). This compares to a turnover of 510,802 \div (51,700 + 1,587) = 23 and an average days inventory of 56 days ($365 \div 6.56$) for Alcoa. It takes eight more days, on average, for Alcoa to turn over its inventory. Alcoa's inventory turnover ratio is higher than the industry average of 6.19, while its days in inventory is lower.

Inventory turnover increases as cost of goods sold might indicate difficulties in selling sales. These inventory buildups may also indicate that a company has obsolete or slow-moving inventory. This proposition was tested in an important academic research

Professors Lev and Nisanoglu empirically demonstrate the importance of a set of independent variables in valuing companies' common stock. The set of variables in their inventory (change in inventory minus change in sales). The inventory variable was found to be a significant indicator of stock returns, particularly during high and medium market returns.

Earnings Quality

Some of the ratios we discussed above often provide information about the quality of a company's current period earnings. For example, a slowing turnover ratio combined with higher than normal inventory levels may indicate the potential for decreased production, obsolete inventory, or a need to decrease prices, a sell inventory, which will then decrease earnings and net income.

Another issue at which inventory can have an effect is earnings quality, particularly in rapidly changing prices. Earlier in this chapter we discussed the effect of a LIFO liquidation on company profits. A LIFO liquidation (profit or loss) reduces the quality of current earnings. Fortunately for analysts, companies must disclose these profits or losses, if material. In addition, LIFO cost of goods sold determined using a periodic inventory method is more susceptible to manipulation than is FIFO. Year-end purchases can have a significant effect on LIFO cost of goods sold in rapid cost change environments. Recall that an increase in higher cost inventory earnings will be higher. A decrease in inventory reduces earnings quality because it can mask permanent earnings. Inventory increases and changes in inventory method are two additional inventory-related techniques a company could use to manipulate earnings. We discuss these issues in the next section.

METHODS OF SIMPLIFYING LIFO

The LIFO method described and illustrated to this point is a **first-in, first-out (FIFO)** because the first-in, first-out concept is applied to individual units of inventory. One problem with unit LIFO can be very costly to implement. It requires records of each unit of inventory. The cost of maintaining these records can be significant, particularly when a company has many individual units of inventory and when unit costs change often during a period. In the previous section, a second disadvantage of unit LIFO was identified—the possibility that layers will be liquidated if the quantity of a particular inventory item declines below its beginning balance. Even if a company's total inventory quantity is stable or increasing, if the quantity of any particular inventory unit declines, unit LIFO will liquidate all

PART B

The recordkeeping costs of unit LIFO can be significant.

Another disadvantage of unit LIFO is the possibility of LIFO liquidation.

1. R. D. Baskerville, "Production Inventory Accounting: A Critical Review," *Accounting*, August 1993. The study concluded that first-in, first-out (FIFO) and last-in, first-out (LIFO) are useful in cost valuation, particularly when examined in the context of a company's overall financial performance.

or a portion of a LIFO layer of inventory. When inventory quantity declines in a period rising costs, noncurrent lower costs will be included in cost of goods sold and matched against current selling prices, resulting in LIFO liquidation profit.

This part of the chapter discusses techniques that can be used to significantly reduce the recordkeeping costs of LIFO and to minimize the probability of LIFO inventory layer sales being liquidated. Specifically, we discuss the use of inventory pools and the double-value LIFO method.

LIFO Inventory Pools

The objectives of using LIFO inventory pools are to simplify recordkeeping by grouping inventory units into pools based on physical similarities of the individual units and to reduce the risk of LIFO layer liquidation. For example, a glass company might group its three grades of window glass into a single window pool. Other pools might be auto glass and sliding door glass. A lumber company might pool its inventory into hardwood, framing, utility, and other pools.

This allows a company to account for a few inventory pools rather than every specific type of inventory separately. Within pools, all purchases during a period are considered to have been made at the same time and at the same cost. Individual unit costs are converted to an average cost for the pool. If the quantity of ending inventory for the pool increases, the ending inventory will consist of the beginning inventory plus a single layer added during the period at the average acquisition cost for that pool.

Here is an example. Let's say Diamond Lumber Company has a rough-cut lumber inventory pool that includes three types: oak, pine, and maple. The beginning inventory consists of the following:

| | Quantity
(Board Feet) | Cost
(Per Foot) | Total Cost |
|-------|--------------------------|--------------------|-----------------|
| Oak | 16,000 | \$2.20 | \$35,200 |
| Pine | 10,000 | 3.00 | 30,000 |
| Maple | 14,000 | 2.40 | 33,600 |
| | <u>40,000</u> | | <u>\$98,800</u> |

The average cost for this pool is \$2.47 per board foot (\$98,800 ÷ 40,000 board feet). Now assume that during the next reporting period Diamond sold 46,000 board feet of lumber and purchased 40,000 board feet as follows:

| | Quantity
(Board Feet) | Cost
(Per Foot) | Total Cost |
|-------|--------------------------|--------------------|------------------|
| Oak | 20,000 | \$2.25 | \$45,000 |
| Pine | 14,000 | 3.00 | 42,000 |
| Maple | 16,000 | 2.50 | 40,000 |
| | <u>50,000</u> | | <u>\$127,000</u> |

The average cost for this pool is \$2.54 per board foot (\$127,000 ÷ 50,000 board feet). Because the quantity of inventory for this pool increased by 4,000 board feet (40,000 purchased less 46,000 sold), ending inventory will include the beginning inventory and a LIFO layer consisting of the 4,000 board feet increase. We would add this LIFO layer at the average cost of purchases made during the period, \$2.54. The ending inventory of \$108,960 now consists of two layers:

| | Quantity
(Board Feet) | Cost
(Per Foot) | Total Cost |
|---------------------|--------------------------|--------------------|------------------|
| Beginning inventory | 40,000 | \$2.47 | \$98,800 |
| LIFO layer added | 4,000 | 2.54 | 10,160 |
| Ending inventory | <u>44,000</u> | | <u>\$108,960</u> |

erode the advantages of LIFO inventory pools, it is easy to imagine situations in which they are not achieved. Suppose, for instance, that a company discontinues a certain product included in one of its pools. The old costs that accrued to prior layers of inventory could be recognized as cost of goods sold and produce LIFO liquidation profit. Even if the product is replaced with another product, the replacement may not be similar enough to be included in the same inventory pool. In fact, the process itself of having to periodically re-evaluate pools as changes in product mix occur, can be expensive and time consuming. The dollar-value LIFO approach helps overcome these problems.

Dollar-Value LIFO

Dollar-value LIFO (DVL) gained such widespread popularity during the 1960s and 1970s that most LIFO applications are now based on this approach. DVL extends the concept of inventory pools by allowing a company to combine a large variety of goods into one pool. These units are not used in calculating ending inventory. Instead, the inventory is viewed in terms of dollar amount, not a physical quantity of goods. Because it bypasses the distinction between quantities, the DVL method is not as vulnerable as LIFO to the effects of different and non-homogeneous goods.

Because the physical characteristics of inventory items are not relevant to DVL, an inventory pool can include items that are physically dissimilar but have similar physical characteristics. Specifically, a pool should include those goods that are like the subject goods in the same cost characteristics.

ADVANTAGES OF DVL

The DVL method has important advantages. First, it simplifies the record-keeping procedures required to unit LIFO because no information is needed about unit flows. Second, it minimizes the probability of the justification of LIFO inventory being disallowed. Third, because it is based on the aggregation of dollar values of inventory, the larger pools allowed, the method can be used by firms that do not replace units sold with new units of the same kind. For firms whose products are subject to annual model changes, for example, items in one year's inventory are not the same as the prior year's. Under pooled LIFO, these replacement items must be substantially identical to previous models to be included in the same pool. Under DVL, no distinction is drawn between the old and new merchandise on the basis of their physical characteristics, so a much broader range of goods can be included in the pool. That is, the acquisition of the new items is viewed as replacement of the dollar value of the old items. Because the old layers are maintained, this approach retains the benefits of LIFO by matching the most recent acquisition costs of goods with sales measured in current selling prices.

LOSS INDEXES

Under the unit LIFO approach or the pooled LIFO approach, we determine whether a new layer was added by comparing the ending quantity with the beginning quantity. The focus is on the units of inventory. Under DVL, we determine whether a new LIFO layer was added by comparing the ending dollar amount with the beginning dollar amount. The focus is on the dollar value, not units. However, if the price level has changed, we need a way to determine whether an observed increase is a real increase in the quantity of inventory, or an increase due to an increase in prices. So before we compare the beginning and ending inventory amounts, we need to deflate inventory amounts by any increase in prices so that both the beginning and ending amounts are measured in terms of the same price level. We accomplish this by using cost indexes. A cost index for a particular layer year is determined as follows:

$$\text{Cost index for layer year} = \frac{\text{Cost in layer year}}{\text{Cost in base year}}$$

The base year is the year in which the DVL method is adopted and the layer year is any subsequent year in which an inventory layer is created. The cost index for the base year must equal 100. Subsequent years' indexes reflect cost changes relative to the base year. For example, if a "basket" of inventory items cost \$20 at the end of the current year, and \$180 at the

LO 4



The pool is made up of items that are likely to be replaced by similar items.

The cost index for the base year is 100. The cost index for the current year is 90.

end of the base year, the cost index for the current year would be $\$20 \div \$100 = 120\%$, or 120. This index simply tells us that costs in the later year are 120% of what they were in the base year, i.e., costs increased by 20%.

There are several techniques that can be used to determine an index for a DVL pool. External index (like the Consumer Price Index or the Producer Price Index) can be used. However, in most cases these indexes would not properly reflect cost changes in an individual DVL pool. Instead, most companies use an internally generated index. These indexes can be calculated using one of several techniques such as the *chain-link method* or the *link-chain method*. A discussion of these methods is beyond the scope of this text. In our examples and illustrations, we assume cost indexes are given.

THE DVL INVENTORY ESTIMATION TECHNIQUE

DVL estimation begins with the determination of the current year's ending inventory value in terms of year-end costs. It's not necessary for a company using DVL to track the number of purchases during the year. All that's needed is to take the physical quantities of goods on hand at the end of the year and apply year-end costs. Let's say the Hanes Company adopted the dollar-value LIFO method on January 1, 2006, when the inventory value was \$400,000. The 2006 ending inventory valued at year-end costs is \$420,000, and the cost index for the year is 1.05 (105%).

What is the 2006 ending inventory valued at DVL cost? The first step is to convert the ending inventory from year-end costs to base year costs so we can see if there was a real increase in inventory rather than an increase caused by price increases. We divide the ending inventory by the year's cost index to get an amount that can be compared directly with beginning inventory.

$$\text{Ending inventory at base year cost} = \frac{\$420,000}{1.05} = \$400,000$$

The \$400,000 reflects the 2006 ending inventory deflated to base year cost.

Next we compare the \$400,000 ending inventory at base year cost to the beginning inventory also at base year cost, of \$400,000. The \$20,000 increase in base-year dollars signifies a real increase in inventory quantity during the year. Applying the LIFO concept, ending inventory at base year cost consists of the beginning inventory layer of \$400,000 plus \$20,000 of 2006 layer. These are the cost layers at costs as the layers were acquired at base year prices.

Once the layers are identified, each is related to prices existing when the layers were acquired. Each layer is multiplied by the cost index for the year it was acquired. The costs are added to obtain ending inventory at DVL cost.¹⁵

| Date | Ending Inventory
at Base Year Cost | Cost
Index | Ending Inventory
at DVL Cost |
|--------------|---------------------------------------|---------------|---------------------------------|
| 1/1/06 | \$400,000 | 1.00 | \$400,000 |
| 2006 layer | 20,000 | 1.05 | 21,000 |
| Total | \$420,000 | | \$421,000 |

If we determined that inventory quantity had decreased during the year, then there would have been no 2006 layer added. The most recently added layer in this case the beginning inventory layer, would be decreased to the inventory valuation determined in step 1. Once a layer of inventory or a portion of a layer is used (that is, sold) it cannot be replaced. In our example, if the base year layer is reduced to \$380,000, it will never be increased. Future increases in inventory quantity will result in new layers being added. This situation is illustrated in the concept review exercise that follows.

¹⁵It is important to note that the costs of the year's layer are only an approximation of actual acquisition costs. DVL assumes that all inventory quantities added during a particular year were acquired at a single price.

CONCEPT REVIEW EXERCISE

In January 2006, the Johnson Company adopted the dollar-value LIFO method. The inventory value on this date was \$500,000. Inventory data for 2006 through 2009 are as follows.

DOLLAR-VALUE LIFO

| Date | Ending inventory at Year-End Costs | Cost Index |
|----------|------------------------------------|------------|
| 12/31/06 | \$500,000 | 1.00 |
| 12/31/07 | 550,000 | 1.10 |
| 12/31/08 | 615,250 | 1.15 |
| 12/31/09 | 720,000 | 1.25 |

CHECK WITH THE COACH



Required

Calculate Johnson's ending inventory for the years 2006 through 2009.

| JOHNSON COMPANY | | | | | SOLUTION |
|-----------------|-----------------------------------|------------------------------------|--|---|------------------------------|
| | | Step 1 | Step 2 | Step 3 | |
| Date | Ending Inventory at Year-End Cost | Ending Inventory at Base Year Cost | Inventory Layers at Base Year Cost | Inventory Layers Converted to Acquisition Year Cost | Ending Inventory At DVL Cost |
| 2006 | \$500,000 (base year) | \$500,000
1.00 | \$500,000 (base) | $\$500,000 \times 1.00 = \$500,000$ | \$500,000 |
| 2007 | 550,000 | \$550,000
1.10 | \$500,000 (base)
50,000 (2006) | $\$500,000 \times 1.10 = \$550,000$
$50,000 \times 1.00 = 50,000$ | \$550,000 |
| 2008 | 615,250 | \$615,250
1.15 | \$500,000 (base)
10,000 (2006)
10,000 (2007) | $\$500,000 \times 1.15 = \$575,000$
$10,000 \times 1.10 = 11,000$
$10,000 \times 1.00 = 10,000$ | \$596,000 |
| 2009 | 615,250 | \$615,250
1.15 | \$500,000 (base)
10,000 (2006)
10,000 (2007)
10,000 (2008) | $\$500,000 \times 1.15 = \$575,000$
$10,000 \times 1.10 = 11,000$
$10,000 \times 1.00 = 10,000$
$10,000 \times 1.15 = 11,500$ | \$607,500 |
| 2010 | 720,000 | \$720,000
1.25 | \$500,000 (base)
10,000 (2006)
10,000 (2007)
10,000 (2008)
10,000 (2009) | $\$500,000 \times 1.25 = \$625,000$
$10,000 \times 1.15 = 11,500$
$10,000 \times 1.10 = 11,000$
$10,000 \times 1.15 = 11,500$
$10,000 \times 1.25 = 12,500$ | \$670,500 |

Costs in the base year are \$500,000. In 2007, the cost index is 1.10. If the base year cost is \$500,000, the 2007 cost is \$550,000. In 2008, the cost index is 1.15. If the base year cost is \$500,000, the 2008 cost is \$575,000. In 2009, the cost index is 1.25. If the base year cost is \$500,000, the 2009 cost is \$625,000. In 2010, the cost index is 1.25. If the base year cost is \$500,000, the 2010 cost is \$625,000.

FINANCIAL REPORTING CASE

SOLUTION

What inventory method does Ford use to value its inventories? Is this permissible according to GAAP? (p. 363) Ford uses the LIFO inventory method to value about one-fourth of its inventories. The cost of the remaining inventories is determined primarily by the FIFO method. Yes, both of these methods are permissible according to generally accepted accounting principles.

What is the purpose of the disclosure information that reports what LIFO inventories would have been valued at FIFO? (p. 370) The LIFO conformity rule requires that if a company uses LIFO to measure taxable income, it also must use LIFO for external financial reporting. Ford does this. However, in 1981, the LIFO conformity rule was liberalized to allow LIFO users to provide supplemental disclosure of the effect on inventories of using another method or inventory valuation rather than LIFO. Ford's disclosure note offers this additional information.



3. Is your friend correct in his assertion that by using LIFO, Ford was able to report lower profits in 2004? (p. 776) Yes. If Ford had used FIFO instead of LIFO for its LIFO inventory, income before taxes in all prior years, including 2004, would have been higher by \$1,001 million (the increase in 2004 ending inventory). In 2004 alone, income before taxes would have been higher by \$5 million. Here's why: the increase in ending inventory of \$1,001 million decreases cost of goods sold, but the increase in beginning inventory of \$996 million increases cost of goods sold, resulting in a net decrease in cost of goods sold of \$5 million. ■

THE BOTTOM LINE

1. In a perpetual inventory system, inventory is continually adjusted for each change in inventory. Cost of goods sold is adjusted each time goods are sold or returned by a customer. A periodic inventory system adjusts inventory and records cost of goods sold at the end of a reporting period.
2. Generally, determining the physical quantity that should be included in inventory is a simple matter, because it consists of items in the possession of the company. How at the end of a reporting period it is important to determine the ownership of goods that are in transit between the company and its customers as well as between the company and its suppliers. Also, goods on consignment should be included in inventory of the consignor even though the company doesn't have physical possession of the goods. In addition, a company anticipating sales returns includes in inventory the cost of merchandise it estimates will be returned.
3. The cost of inventory includes all expenditures necessary to acquire the inventory, getting it to its desired condition and location for sale or use. Generally, these expenditures include the purchase price of the goods reduced by any returns and purchase discounts, plus freight-in charges.
4. Once costs are determined, the cost of goods available for sale must be allocated between cost of goods sold and ending inventory. Unless each item is specifically identified and traced through the system, the allocation requires an assumption regarding the flow of costs. First-in, first-out (FIFO) assumes that units sold are the first units acquired. Last-in, first-out (LIFO) assumes that the units sold are the most recent units purchased. The average cost method assumes that cost of goods sold and ending inventory consist of a mixture of all the goods available for sale.
5. A company's choice of inventory method will be influenced by (a) how closely the flow reflects the actual physical flow of its inventory, (b) the timing of income tax payments, and (c) how costs are matched with revenues.
6. The LIFO conformity rule requires that if a company uses LIFO to measure net income, it also must use LIFO for external financial reporting. LIFO users often provide supplemental disclosures describing the effect on inventories of using an other method on inventory valuation rather than LIFO. If a company uses LIFO and inventory quantities decline during a period, then out-of-date inventory layers are liquidated and cost of goods sold will partially match noncurrent costs with current selling prices. If costs have been increasing (deferring), LIFO liquidations produce higher (lower) net income than would have resulted if the liquidated inventory were included in cost of goods sold at current costs. The paper profits (losses) caused by including cost of low (high) costs in cost of goods sold is referred to as the effect on income of liquidations of LIFO inventory.
7. Investors, creditors, and financial analysts can gain important insights by measuring a company's investment in inventories. The gross profit ratio, inventory turnover ratio, and average days in inventory are designed to monitor inventories.
8. The dollar-value LIFO method converts ending inventory at year-end cost to base-year cost using a cost index. After identifying the layers in ending inventory with the layers they were created, each year's base-year cost measurement is converted to layer's cost measurement using the layer year's cost index. The layers are then summed to a final total ending inventory at cost. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 8-1** Describe the three types of inventory of a manufacturing company.
- Q 8-2** What is the main difference between a perpetual inventory system and a periodic inventory system?
- Q 8-3** The Cloud Company employs a perpetual inventory system and the McKensie Corporation uses a periodic system. Describe the differences between the two systems in accounting for the following events: (1) purchase of merchandise, (2) sale of merchandise, (3) return of merchandise to supplier, and (4) payment of freight charge on merchandise purchased. Indicate which accounts should be debited and credited for each.
- Q 8-4** The Ruckner Company shipped merchandise to Luetner Corporation on December 28, 2006. Luetner received the shipment on January 3, 2007. December 31 is the fiscal year-end for both companies. The merchandise was shipped FOB shipping point. Explain the difference in the accounting treatment of the merchandise if the shipment had instead been designated FOB destination.
- Q 8-5** What is a consignment arrangement? Explain the accounting treatment of goods held on consignment.
- Q 8-6** Distinguish between the gross and net methods of accounting for purchase discounts.
- Q 8-7** The Lutzner Company employs a periodic inventory system. Indicate the effect "increase or decrease" of the following items on cost of goods sold:
- 1. Beginning inventory
 - 2. Purchases
 - 3. Ending inventory
 - 4. Purchase returns
 - 5. Freight-in
- Q 8-8** Identify four methods of assigning cost to ending inventory and cost of goods sold and briefly explain the difference in the methods.
- Q 8-9** It is common in the electronics industry for unit costs of new materials inventories to decline over time. In this environment, explain the difference between FIFO and LIFO, in terms of the effect on income and in material position. Assume that inventory quantities remain the same for the period.
- Q 8-10** Explain why proponents of LIFO argue that it provides a better match of revenue and expenses. In what situation would LIFO provide a better match?
- Q 8-11** Explain what is meant by the Internal Revenue Service conformity rule with respect to the inventory method choice.
- Q 8-12** Describe the means used by financial analysts to monitor a company's investments in inventories.
- Q 8-13** What is a LIFO inventory pool? How is the cost of ending inventory determined when pools are used?
- Q 8-14** Identify two advantages of dollar-value LIFO compared with unit LIFO.
- Q 8-15** The Austin Company uses the dollar-value LIFO inventory method with internally developed price indexes. Assume that ending inventory at year-end cost has been determined. Outline the remaining steps used in the dollar-value LIFO computation.

BRIEF EXERCISES

- B.E. 1** Perpetual inventory system
Inventory periodic cost
- A company began its fiscal year with inventory of \$186,000. Purchases and cost of goods sold for the year were \$945,000 and \$987,000, respectively. What was the amount of ending inventory?
- B.E. 2** Perpetual inventory system
Inventory periodic cost
- Luton Industries uses a perpetual inventory system. The company began its fiscal year with inventory of \$767,000. Purchases of merchandise on account during the year totaled \$645,000. Merchandise costing \$902,000 was sold on account for \$1,429,000. Prepare the journal entries to record these transactions.
- B.E. 3** Inventory valuation
- Kelly Corporation shipped goods to a customer FOB destination on December 29, 2006. The goods arrived at the customer's location in January. In addition, one of Kelly's major suppliers shipped goods to Kelly FOB shipping point on December 10. The merchandise arrived at Kelly's location in January. Which shipments should be included in Kelly's December 31 inventory?

BE B-4
Purchase discounts, gross method

• 103

BE B-5
Purchase discounts, net method

• 103

BE B-6
Inventory cost flow methods, periodic system

• 104

BE B-7
Inventory cost flow methods, perpetual system

• 104

BE B-8
LIFO method

• 104

BE B-9
LIFO method

• 104

BE B
LIFO liquidation

• 104

BE B-11
Supplemental LIFO disclosures

• 104

BE B-12
Ratio analysis

• 104

BE B-13
Dollar-value LIFO

• 104

In December 31, 2006, Keweenaw Corporation (KTC) purchased 9 units of a new satellite uplink system from a supplier on terms of 2/10, net 30. The terms of each sale were 2/10, net 30. KTC uses the gross method to determine its purchase discounts and its ending inventory as of December 31, 2006. Prepare the journal entries in December 31 and January 1 to account for purchase discounts.

Refer to the information described in BE B-4. The net purchase discount assuming that KTC uses the net method to determine its purchase discounts

Sanctuary and Music are identical except that each has 700 units of its one product. These units were purchased at the cost of 2005 for \$25 each. During the month of January, 100 units were purchased at \$25 each and 100 units were sold at \$30 each. During January, 900 units were sold at \$30 each. Calculate ending inventory and cost of goods sold for January using FIFO and LIFO average cost.

Refer to the situation described in BE B-6. KTC uses a perpetual inventory system. Calculate ending inventory and cost of goods sold for January using FIFO and LIFO average cost.

Esquire, Inc. uses the LIFO method to value its inventory. Inventory at January 1, 2006, was \$5,000 (20,000 units at \$25 each). During 2006, 10,000 units were purchased, all at the same price of \$30 per unit. \$5,000 units were sold during 2006. Esquire uses a perpetual inventory system. Calculate the December 31, 2006, ending inventory and cost of goods sold for 2006.

AAA Hardware uses the LIFO method to value its inventory. Inventory at the beginning of the year was 10,000 units of the company's one product. These units cost \$5 each. During the year, 10,000 units were purchased at a cost of \$6 each. AAA Hardware was sold from the end of the fiscal year the company is considering the purchase of an additional 10,000 units at \$6. What would be the effect on the purchase on income before income taxes? Would your answer be the same if the company used FIFO or LIFO?

Refer to the situation described in BE B-8. Assuming an income tax rate of 40%, what is LIFO liquidation profit or loss that the company would report in a disclosure note accompanying its financial statements?

Admiral, Inc. reported inventories of \$3,000 million and \$2,973 million in its 2004 and 2003 disclosures, respectively. Cost of goods sold for 2004 was \$25,306 million. The company uses both the LIFO and FIFO inventory methods. A disclosure note reported that if FIFO had been used exclusively, income would have been higher by \$376 million and \$376 million at the end of 2004 and 2003, respectively. Calculate cost of goods sold assuming the exclusive use of FIFO.

Selected financial statement data for Schwanzer, Inc. is shown below.

| | 2006 | 2005 |
|-----------------------------------|--------|--------|
| Balance sheet: | | |
| Inventories | 60,000 | 48,000 |
| Ratios: | | |
| Gross profit ratio for 2006 | 40% | |
| Inventory turnover ratio for 2006 | 5 | |

What was the amount of net sales for 2006?

At the beginning of 2006, a company adopts a dollar-value LIFO inventory method for its cost of inventory. The cost of that date was \$1,000. The 2006 ending inventory value at year-end was \$1,064,000 and the year-end cost index was 1.064. Calculate the inventory value at the end of 2006 using the dollar-value LIFO method.

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/cpi/accounting

E
Perpetual inventory
system: journal entries

John's Specialty Store uses a perpetual inventory system. The following are some inventory transactions for the month of May, 2006:

1. John's purchased merchandise on account for \$5,000. Freight charges of \$300 were paid in cash.
2. John's shipped some of the merchandise purchased in 1) to Triha's. The cost of the merchandise was \$600, and Triha's account was credited by the supplier.
3. Merchandise costing \$2,500 was sold for \$5,500 in cash.

Required:

Prepare the necessary journal entries to record these transactions.

EB
Periodic inventory
system: journal entries

This is a variation of the previous exercise modified to focus on the periodic inventory system.

John's Specialty Store uses a periodic inventory system. The following are some inventory transactions for the month of May, 2006:

1. John's purchased merchandise on account for \$5,000. Freight charges of \$300 were paid in cash.
2. John's shipped some of the merchandise purchased in 1) to Triha's. The cost of the merchandise was \$600, and Triha's account was credited by the supplier.
3. Merchandise costing \$2,500 was sold for \$5,500 in cash.

Required:

Prepare the necessary journal entries to record these transactions.

E 1
Determining cost of
goods sold: periodic
inventory system

Askew Clothing Store is a periodic inventory system. The June 30, 2006, year-end trial balance for the company contained the following information:

| Account | Debit | Credit |
|-------------------------------|---------|---------|
| Merchandise Inventory, 7/1/05 | 32,000 | |
| Sales | | 280,000 |
| Sales returns | 12,000 | |
| Purchases | 240,000 | |
| Purchase discounts | | 6,000 |
| Purchase returns | | 10,000 |
| Freight-in | 17,000 | |
| Freight-out | 33,000 | |

In addition, you determine that the June 30, 2006, inventory balance is \$43,000.

Required:

1. Calculate the cost of goods sold for the Askew Company for the year ending June 30, 2006.
2. Prepare the year-end adjusting entry to record cost of goods sold.

E 2
Perpetual and periodic
inventory systems:
adjusted

The following information is available for the Johnson Corporation for 2006:

| | |
|---|-----------|
| Beginning inventory | \$ 25,000 |
| Merchandise purchases (on account) | 155,000 |
| Freight charges on purchases (paid in cash) | 10,000 |
| Merchandise returned to supplier (for credit) | 12,000 |
| Ending inventory | 30,000 |
| Sales (on account) | 250,000 |
| Cost of merchandise sold | 165,000 |

Required:

Applying both a perpetual and a periodic inventory system, prepare the journal entries that summarize the transactions that created these balances. Include all end-of-period adjusting entries indicated.

E 3
Periodic inventory
system: missing data

The Playu Company uses a periodic inventory system. The following information is taken from Playu's records. Certain data have been intentionally omitted. \$ is thousands.

| | 2006 | 2007 | 2008 |
|----------------------------------|------|------|------|
| Beginning inventory | 7 | 7 | 25 |
| Cost of goods sold | 627 | 629 | 9 |
| Ending inventory | 9 | 225 | 216 |
| Cost of goods available for sale | 876 | 9 | 800 |
| Purchases (gross) | 630 | 9 | 585 |
| Purchase discounts | 18 | 13 | 9 |
| Purchase returns | 24 | 30 | 14 |
| Freight-in | 12 | 32 | 16 |

Required:

Determine the missing numbers. Show complete work where appropriate.

E B-6

Purchase discounts, the gross method

• LO1

On July 5, 2006, the Simon Car Company purchased 100 units from the Harwell Company for \$200. The terms of the sale were 2/10, n/30. Simon uses a periodic inventory system and the gross method of accounting for purchase discounts.

Required:

1. Prepare the journal entries to record the purchase on July 5 and payment on July 23, 2006.
2. Prepare the journal entry to record the payment on August 5, 2006.
3. What effect would a perpetual inventory system with any changes to the journal entries create on requirements 1 and 2?

E B-7

Purchase discounts, the net method

• LO1

(This is a variation of the previous exercise applied to firms on the net method of accounting for purchase discounts.)

On July 5, 2006, the Simon Car Company purchased 100 units from the Harwell Company for \$200 each. The terms of the sale were 2/10, n/30. Simon uses a periodic inventory system and the net method of accounting for purchase discounts.

Required:

1. Prepare the journal entries to record the purchase on July 5 and payment on July 23, 2006. Prepare the journal entry to record the payment on August 5, 2006.
2. If Simon instead uses a perpetual inventory system with any changes to the journal entries needed in requirements 1 and 2.

E B-8

Trade and purchase discounts, the gross method and the net method compared

• LO1

Track Company, a manufacturer of air conditioners, sold 40 units to Thomas Company in November 2006. The units have a cost of \$400 each. Thomas was given a 50% trade discount. The terms of the sale were 0/10, n/30. Thomas uses a periodic inventory system.

Required:

1. Prepare the journal entries to record the purchase by Thomas on November 17 and payment on November 26, 2006, using the gross method of accounting for purchase discounts.
2. Prepare the journal entry to record the payment on December 15, 2006, using the gross method of accounting for purchase discounts.
3. Repeat requirements 1 and 2 using the net method of accounting for purchase discounts.

E B-9

Goods in transit

• LO2

The Kwok Company's inventory balance on December 31, 2006, was \$165,000 based on a physical count. Before recording the following transactions:

1. Goods shipped to Kwok f.o.b. destination on December 20, 2006, were received on January 4, 2007. The invoice cost was \$30,000.
2. Goods shipped to Kwok f.o.b. shipping point on December 18, 2006, were received on January 3, 2007. The invoice cost was \$17,000.
3. Goods shipped from Kwok to a customer f.o.b. destination on December 17, 2006, were received by the customer on January 3, 2007. The sales price was \$40,000 and the merchandise cost \$24,000.
4. Goods shipped from Kwok to a customer f.o.b. destination on December 16, 2006, were received by the customer on December 30, 2006. The sales price was \$30,000 and the merchandise cost \$18,000.
5. Goods shipped from Kwok to a customer f.o.b. shipping point on December 28, 2006, were received by the customer on January 4, 2007. The sales price was \$24,000 and the merchandise cost \$14,000.

Required:

Determine the correct inventory amount to be reported in Kwok's 2006 balance sheet.

E B-10

Goods in transit; consignment

• LO2

The December 2006 year-end inventory balance of the Raymond Corporation is \$20,000. Year-end audit work reviewed the following transactions to determine if they have been correctly recorded:

1. Goods shipped to Raymond f.o.b. destination on December 16, 2006, were received on January 3, 2007. The invoice cost of \$10,000 is included in the preliminary inventory balance.
2. At year-end, Raymond held \$14,000 of merchandise on consignment from the Harrison Company. The merchandise is included in the preliminary inventory balance.
3. On December 19, merchandise costing \$6,000 was shipped to a customer f.o.b. shipping point and arrived at the customer's location on January 3, 2007. The merchandise is not included in the preliminary inventory balance.
4. At year-end, Raymond had merchandise costing \$14,000 on consignment with the Jody's Corporation. The merchandise is not included in the preliminary inventory balance.

Required:

Determine the correct inventory amount to be reported in Raymond's 2006 balance sheet.

Altus Corporation uses a periodic inventory system. The following information related to its merchandise inventory during the month of August 2006 is available:

| | |
|--------|--|
| Aug. 1 | Inventory on hand—2,000 units, cost \$6.00 each. |
| 5 | Purchased 1,000 units for \$5.50 each. |
| 8 | Sold 500 units for \$7.00 each. |
| 10 | Purchased 4,000 units for \$5.00 each. |
| 21 | Sold 2,000 units for \$6.50 each. |
| 31 | Inventory on hand—3,000 units. |

Required

Determine the inventory balance Altus should report on its August 31, 2006, balance sheet and the cost of goods sold it would report in its August 2006 income statement using each of the following cost flow methods:

- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)

3. Average cost

This is a variation of the previous exercise modified to focus on the perpetual inventory system and alternative cost flow methods.

Altus Corporation uses a perpetual inventory system. The following transactions affected its merchandise inventory during the month of August 2006:

| | |
|--------|--|
| Aug. 1 | Inventory on hand—2,000 units, cost \$6.10 each. |
| 5 | Purchased 3,000 units for \$5.50 each. |
| 14 | Sold 8,000 units for \$12.50 each. |
| 18 | Purchased 4,000 units for \$5.00 each. |
| 25 | Sold 2,000 units for \$11.00 each. |
| 31 | Inventory on hand—3,000 units. |

Required

Determine the inventory balance Altus would report on its August 31, 2006, balance sheet and the cost of goods sold it would report in its August 2006 income statement using each of the following cost flow methods:

- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)
- Average cost

Altus Company's inventory records contained the following information regarding its inventory model. The company uses a perpetual inventory system.

| | |
|--------------------------------------|-------------------------|
| Beginning inventory, January 1, 2006 | 600 units @ \$80 each |
| Purchases: | |
| January 15 | 1,000 units @ \$75 each |
| January 21 | 800 units @ \$100 each |
| Sales: | |
| January 5 | 400 units @ \$120 each |
| January 22 | 800 units @ \$130 each |
| January 29 | 400 units @ \$135 each |
| Ending inventory, January 31, 2006 | 600 units |

Required

- Which method, FIFO or LIFO, will result in the highest cost of goods sold figure for January 2006? Why? Which method will result in the highest ending inventory balance? Why?
- Compute the cost of goods sold and the ending inventory using both the FIFO and LIFO methods.

The following information is taken from the inventory records of the CNB Company.

| | |
|--|-----------------------|
| Beginning inventory 9/1/05 | 5,000 units @ \$10.00 |
| Purchases: | |
| 9/15 | 3,000 units @ \$10.40 |
| 9/25 | 8,000 units @ \$10.75 |
| Sales: | |
| 9/10 | 4,000 units |
| 9/20 | 3,000 units |
| 7,000 units were on hand at the end of September | |

inventory cost flow method: periodic system

8-10-2006

inventory cost flow method: perpetual system

8-10-2006

inventory cost flow method: periodic system

8-10-2006

inventory cost flow method: perpetual system

8-10-2006

Required:

1. Assuming that CTR uses a periodic inventory system and employs the average cost method, determine cost of goods sold for September and September's ending inventory.
2. Repeat requirement 1 assuming that the company uses a perpetual inventory system.

E B-5

FIFO, LIFO, and
average cost methods

• LO 3-34

Casswell Company began 2006 with 4,000 units of inventory on hand. The cost of each unit was \$3.00. During 2006 an additional 10,000 units were purchased at a single unit cost, and 20,000 units remained on hand at the end of 2006. 10,000 units therefore were sold during 2006. Casswell uses a periodic inventory system. Cost of goods sold for 2006, applying the average cost method, is \$15,000. The company is interested in determining what cost of goods sold would have been if the FIFO or LIFO method were used.

Required:

1. Determine the cost of goods sold for 2006 using the FIFO method. *Hint:* Determine the cost per unit of 2006 purchases.
2. Determine the cost of goods sold for 2006 using the LIFO method.

E B-16

Merchandise
inventory measurement

• LO 3-34

The following questions dealing with inventory measurement are adapted from questions that appeared in CPA examinations. Determine the response that best completes the statements or questions.

1. Here's Ch's inventory at December 31, 2006, was \$150,000 based on a physical count priced in cost and before any adjustment for the following:
 - a. Merchandise costing \$40,000 shipped FOB shipping point from a vendor on December 30, 2006, was received and recorded on January 5, 2007.
 - b. Goods in the shipping process were excluded from inventory although shipment was not made until January 4, 2007. The goods, billed to the customer FOB shipping point on December 30, 2006, had a cost of \$15,000.

What amount should Here report as inventory on its December 31, 2006, balance sheet?

- a. \$150,000
- b. \$160,000
- c. \$165,000
- d. \$17,000

Items 2 and 3 are based on the following:

During 2007, Metro Co., which maintains a perpetual inventory system, recorded the following information pertaining to its inventory:

| | Units | Unit Cost | Total Cost | Units on Hand |
|----------------------|-------|-----------|------------|---------------|
| Balance on 1/1/06 | 1,000 | \$1 | \$1,000 | 1,000 |
| Purchased on 1/7/06 | 600 | 2 | 1,200 | 1,600 |
| Sold on 1/20/06 | 400 | | | 700 |
| Purchased on 1/25/06 | 400 | 5 | 2,000 | 1,100 |

2. Under the moving-average inventory method, what amount should Metro report as inventory on January 31, 2006?
 - a. \$2,640
 - b. \$3,225
 - c. \$3,100
 - d. \$3,900
3. Under the LIFO method, what amount should Metro report as inventory on January 31, 2006?
 - a. \$3,300
 - b. \$2,700
 - c. \$3,900
 - d. \$3,000
4. According to the cost method, which of the following items would be included in the cost of inventory?

| | Freight Costs | Purchase Discounts Not Taken |
|----|---------------|------------------------------|
| a. | Yes | No |
| b. | Yes | Yes |
| c. | No | Yes |
| d. | No | No |

E B-7

LIFO liquidation

• LO 3-36

The Muskegon Company began 2006 with inventory of 10,000 units at a cost of \$7 per unit. During the 2006, units were purchased for \$8.50 each. At the end of the year, there were 5,000 units remaining in the inventory. The company uses a periodic inventory system and the LIFO inventory method.

Required:

- Calculate the inventory cost for 2007.
- From a financial reporting perspective, what problem is created by the use of LIFO in this situation? Describe the disclosure required to report the effects of this problem.

The table below contains selected financial information from the 2003 financial statements of Maytag Corporation and Whirlpool Corporation. It is in millions.

| | Maytag | | Whirlpool | |
|--------------------|---------|---------|-----------|----------|
| | 2003 | 2002 | 2003 | 2002 |
| Net sales | \$4,497 | \$4,666 | \$12,176 | \$11,016 |
| Cost of goods sold | 3,932 | 3,461 | 9,407 | 8,464 |
| Year-end inventory | 465 | 408 | 1,380 | 1,089 |

Required:

Calculate and compare the 2003 gross profit ratio, the inventory turnover ratio, and the average days in inventory for the two companies.

On January 1, 2006, the Haskins Company adopted the dollar-value LIFO method for its one inventory pool. The pool's value on this date was \$666,000. The 2006 and 2007 ending inventory valued at year-end costs were \$694,000 and \$760,000, respectively. The appropriate cost indexes are 1.04 for 2006 and 1.08 for 2007.

Required:

Calculate the inventory value at the end of 2006 and 2007 using the dollar-value LIFO method.

Mercury Company has only one inventory pool. On December 31, 2006, Mercury adopted the dollar-value LIFO inventory method. The inventory on that date using the dollar-value LIFO method was \$200,000. Its inventory data are as follows:

| Year | Inventory at Year-End Costs | Inventory at Base Year Costs |
|------|-----------------------------|------------------------------|
| 2007 | \$221,000 | \$220,000 |
| 2008 | 299,000 | 260,000 |
| 2009 | 300,000 | 250,000 |

Required:

Compute the inventory at December 31, 2007, 2008, and 2009, using the dollar-value LIFO method.

Adapted from CPA

The following questions dealing with dollar-value LIFO are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statement or question.

- Walt Co. adopted the dollar-value LIFO inventory method as of January 1, 2006, when its inventory was valued at \$300,000. Walt's entire inventory constitutes a single pool. Using a relevant cost index of 1.0, Walt determined that its December 31, 2006, inventory was \$377,500 at current year cost and \$354,000 at base year cost. What was Walt's dollar-value LIFO inventory at December 31, 2006?
 - \$354,000
 - \$377,500
 - \$54,000
 - \$577,500
- Brack Co. adopted the dollar-value LIFO inventory method as of January 1, 2005. A single inventory pool and an internally computed cost index are used to compute Brack's LIFO inventory layers. Information about Brack's dollar-value inventory follows:

| Date | Inventory | | |
|------------|-------------------|----------------------|----------------------|
| | At Base Year Cost | At Current Year Cost | At Dollar-Value LIFO |
| 1/1/05 | 34,000 | \$40,000 | \$40,000 |
| 2005 layer | 100 | 5,000 | 5,000 |
| 12/31/05 | 4,000 | 54,000 | 46,000 |
| 2006 layer | 100 | 25,000 | 25,000 |
| 12/31/06 | 50,000 | 580,000 | 580,000 |

What was Brack's dollar-value LIFO inventory at December 31, 2006?

- \$46,000
- \$54,000
- \$55,000
- \$64,000

E 4-22

Concepts, terminology

LO1 through LO5

Listed below are several terms and phrases associated with inventory measurement. Pair each term from List A (by number) with the item from List B that is best appropriately associated with it.

List A

1. First-in, first-out system
2. Periodic inventory system
3. FOB shipping point
4. Gross method
5. Net method
6. Cost index
7. First-come, first-served
8. FIFO
9. LIFO
10. Weighted average cost
11. Specific identification
12. LIFO inventory rule

List B

- a. Legal title passes when goods are delivered to common carrier
- b. Goods are transferred to another company but title remains with transferee
- c. Purchase discounts not taken are included in inventory cost
- d. If LIFO is used for taxes, it must be used for financial reporting
- e. Goods sold are those acquired first
- f. Goods sold are those acquired last
- g. Purchase discounts not taken are considered interest expense
- h. Inventory ending inventory at year-end cost is \$100,000
- i. Continuously records changes in inventory
- j. Goods sold come from a mixture of goods acquired during the period
- k. Title passes when goods arrive at location
- l. Inventory at the end of the period

E 4-23

Multiple choice; CMA
expts, inventory
measurement

LO1 through LO4

The following questions dealing with inventory are assumed from questions that previously appeared on the CPA exam. The CPA exam questions are assumed to be the same as those on the CPA exam. The CPA exam questions are assumed to be the same as those on the CPA exam. The CPA exam questions are assumed to be the same as those on the CPA exam.

Questions 1 through 3 are based on the following information. Thomas Engine Company is a manufacturer of engine engine parts. The activity of engine engine parts during the month of March is presented below.

| Date | Balance or Transaction | Units | Unit Cost | Unit Sales Price |
|-------|------------------------|-------|-----------|------------------|
| Mar 1 | Inventory | 1,500 | \$64.00 | \$64.50 |
| 4 | Purchase | 1,400 | 64.75 | 67.00 |
| 16 | Sales | 1,600 | | 67.25 |
| 25 | Purchase | 1,500 | 64.00 | 67.25 |
| 28 | Sales | 1,450 | | 68.00 |

If Thomas uses a first-in, first-out perpetual inventory system, the total cost of the inventory is on hand on March 31 is

- a. \$100,000
 - b. \$100,488
 - c. \$100,000
 - d. \$100,400
- If Thomas uses a last-in, first-out periodic inventory system, the total cost of the inventory is on hand on March 31 is
- a. \$100,000
 - b. \$100,488
 - c. \$100,000
 - d. \$100,400

If Thomas uses a last-in, first-out perpetual inventory system, the total cost of the inventory is on hand on March 31 is

- a. \$100,000
- b. \$100,488
- c. \$100,000
- d. \$100,400

PROBLEMS

Available with McGraw-Hill Connect Accounting at www.mcgraw-hill.com/connect

An alternative exercise and problem set is available on the test website: www.mcgraw-hill.com/connect

P 4-1

Various inventory
transactions, journal
entries

LO1 through LO3

James Company began the month of October with inventory of \$5,000. The following inventory transactions occurred during the month:

- a. The company purchased merchandise on account for \$22,000 on October 13, 2016. Terms of the purchase were 2/10, net 30. James uses the net method to record purchases. The merchandise was shipped FOB shipping point and freight charges of \$400 were paid in cash.

- On October 18 the company returned merchandise costing \$3,000. The return reduced the amount owed to the supplier. The merchandise returned came from beginning inventory, not from the October 12 purchase.
- On October 31, Jettaco paid for the merchandise purchased on October 12.
- During October merchandise costing \$ 8,000 was sold on account for \$28,000.
- It was determined that inventory on hand at the end of October cost \$ 6,000.

Required

Assuming that the James Company uses a periodic inventory system, prepare journal entries for the above transactions including the adjusting entry at the end of October to record cost of goods sold.

- Assuming that the James Company uses a perpetual inventory system, prepare journal entries for the above transactions.

Items to be included in inventory

The following inventory transactions took place near December 31, 2006, the end of the Masal Company's fiscal year-end.

- On December 27, 2006, merchandise costing \$2,000 was shipped to the Myers Company on consignment. The shipment arrived at Myers's location on December 29, but none of the merchandise was sold by the end of the year. The merchandise was *not* included in the 2006 ending inventory.
- On January 3, 2007, merchandise costing \$6,000 was received from a supplier and recorded as a purchase on that date and *not* included in the 2006 ending inventory. The invoice revealed that the shipment was made from shipping point on December 24, 2006.
- On December 29, 2006, the company shipped merchandise costing \$12,000 to a customer for destination. The goods, which arrived at the customer's location on January 4, 2007, were *not* included in Masal's 2006 ending inventory. The sale was recorded in 2007.
- Merchandise costing \$4,000 was received on December 18, 2006, on consignment from the Abram Company. A purchase was *not* recorded and the merchandise was *not* included in 2006 ending inventory.
- Merchandise costing \$6,000 was received and recorded as a purchase on January 3, 2007. The invoice revealed that the merchandise was shipped from the supplier on December 24, 2006, for destination. The merchandise was *not* included in 2006 ending inventory.

Required

State whether the company correctly accounted for each of the above transactions. Give the reason for your answer.

Reagan Corporation is a wholesale distributor of truck replacement parts. Initial balances taken from Reagan records are as follows:

| Inventory at December 31 (based on a physical count of goods in Reagan's warehouse on December 31) | | | \$1,200,000 |
|--|--------------------|-------------------|--------------------|
| Accounts payable at December | | | |
| Vendor | Terms | Amount | |
| Bake Company | 2% 10 days, net 30 | \$ 205,000 | |
| Charlie Company | Net 30 | 210,000 | |
| Dolly Company | Net 30 | 300,000 | |
| Eagle Company | Net 30 | 275,000 | |
| Fish Company | Net 30 | | |
| Grog Company | Net 30 | | |
| | | \$1,000,000 | |
| | | <u>25,000,000</u> | |
| Sales for the year | | | <u>\$5,000,000</u> |

Additional information:

- Parts held by Reagan on consignment from Charlie, amounting to \$155,000, were included in the physical count of goods in Reagan's warehouse and in accounts payable at December 31.
- Parts totaling \$22,000, which were purchased from Fish and paid for in December, were sold in the last week of the year and appropriately recorded as sales of \$28,000. The parts were included in the physical count of goods in Reagan's warehouse on December 31, because the parts were on the loading dock waiting to be picked up by customers.
- Parts in transit on December 31 to customers, shipped FOB shipping point on December 28, amounted to \$34,000. The customers received the parts on January 6 of the following year. Sales of \$40,000 to the customers for the parts were recorded by Reagan on January 7.
- Merchandise were holding goods on consignment from Reagan, which had a cost of \$20,000 and a retail value of \$250,000.
- Goods were in transit from Grog to Reagan on December 31. The cost of the goods was \$25,000, and they were shipped FOB shipping point on December 29.

6. A freight bill in the amount of \$2,000 specifically relating to merchandise purchased in December, of which was still in the inventory as December 31, was received on January 3. The freight bill is not included in either the inventory or in accounts payable at December 31.
7. All the purchases Truck Baker occurred during the last seven days of the year. These items have not been recorded in accounts payable and accounted for in the physical inventory as cost before January. Keegan's policy is to pay invoices as late as possible to take advantage of all discounts, adjust interest accordingly, and record accounts payable net of discounts.

Required:

Prepare a schedule of adjustments to the initial amounts using the format shown below. Show the effect of each adjustment separately and the transactions would have no effect on the unadjusted balance.

| | Inventory | Accounts Payable | Sales |
|------------------------------------|-----------|------------------|-------------|
| Unadjusted | \$ 50,000 | \$1,000,000 | \$9,000,000 |
| Adjustments: -increase (decrease): | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| Total adjustments | | | |
| Adjusted amounts | \$ _____ | \$ _____ | \$ _____ |

300 PA answers

P 8-4

Various inventory

adjustments

Determining inventory

and cost of goods

LO¹ through LO⁴

Johnson Corporation began 2006 with inventory of 10,000 units of its only product. The units cost \$8 each. The company uses a periodic inventory system and the LIFO cost method. The following transactions occurred during 2006:

- Purchased 10,000 additional units at a cost of \$10 per unit. Terms of the purchases were 2/10, n/30, and 40% of the purchases were paid for within the 10-day discount period. The company uses the net method to record purchase discounts. The merchandise was purchased with shipping point and freight charges of \$50 per unit were paid by Johnson.
- 1,000 units purchased during the year were returned to suppliers for credit. Johnson was also given credit for the freight charges of \$50 per unit it had paid on the original purchase. The units were defective and were returned 90 days after they were received.
- Sales for the year totaled 45,000 units at \$18 per unit.
- On December 28, 2006, Johnson purchased 5,000 additional units at \$10 each. The goods were shipped F.O.B. destination and arrived at Johnson's warehouse on January 4, 2007.
- 10,000 units were on hand at the end of 2006.

Required:

- Determine ending inventory and cost of goods sold for 2006.
- Assuming that operating expenses other than those indicated in the above transactions amounted to \$100,000, determine income before income taxes for 2006.

Fizzle Company began 2006 with 6,000 units of its principal product. The cost of each unit is \$8. Merchandise transactions for the month of January 2006 are as follows:

| Date of Purchase | Units | Purchase | |
|------------------|-------|------------|------------|
| | | Unit Cost* | Total Cost |
| Jan. 10 | 5 | \$ 9 | \$ 45.00 |
| Jan. 18 | 6 | 10 | 60.00 |
| Total | 11 | | \$ 105.00 |

* Unit purchase price and cost of freight

Sales

| Date of Sale | Units |
|--------------|-------|
| Jan. 5 | 3 |
| Jan. 7 | 2 |
| Jan. 20 | 4 |
| Total | 9 |

P 9-5

Various inventory

costing methods

LO¹ D4

Excel

h. Kitchens were on hand at the end of the month.

Required:

Calculate January's ending inventory and cost of goods sold for the month using each of the following methods:

- FIFO periodic system
- FIFO periodic system
- FIFO periodic system
- Average cost periodic system
- Average cost periodic system

Topanga Group began operations early in 2006. Inventory purchase information for the quarter ended March 31, 2006, for Topanga's only product is provided below. The unit price includes the cost of freight. The company uses a periodic inventory system.

| Date of Purchase | Units | Unit Cost | Total Cost |
|------------------|--------|-----------|------------------|
| Jan. 7 | 5,000 | \$4.00 | \$ 20,000 |
| Feb. 16 | 12,000 | 4.50 | 54,000 |
| March 22 | 17,000 | 5.00 | 85,000 |
| Totals | 34,000 | | <u>\$159,000</u> |

Sales for the quarter, all at \$7.00 per unit, totaled 30,000 units leaving 4,000 units on hand at the end of the quarter.

Required:

- Calculate the Topanga's gross profit ratio for the first quarter using:
 - FIFO
 - LIFO
 - Average cost
- Comment on the relative effect of each of the three inventory methods on the gross profit ratio.

Carlson Auto Dealers, Inc. sells a handmade automobile as its only product. Each automobile is identical; however, they can be distinguished by their unique ID number. At the beginning of 2006, Carlson had three cars in inventory as follows:

| Car ID | Cost |
|--------|----------|
| 207 | \$60,000 |
| 201 | 65,000 |
| 210 | 63,000 |

During 2006, each of the three autos sold for \$90,000. Additional purchases listed in chronological order and sales for the year were as follows:

| Car ID | Cost | Selling Price |
|--------|----------|---------------|
| 211 | \$67,000 | \$ 90,000 |
| 212 | 63,000 | 93,000 |
| 214 | 64,500 | not sold |
| 214 | 66,000 | 95,000 |
| 215 | 69,000 | 100,500 |
| 216 | 70,500 | not sold |
| 217 | 71,000 | 115,000 |
| 218 | 72,000 | 125,500 |
| 219 | 75,000 | not sold |

Required:

- Calculate 2006 ending inventory and cost of goods sold assuming the company uses the specific identification inventory method.
- Calculate ending inventory and cost of goods sold assuming FIFO and a periodic inventory system.
- Calculate ending inventory and cost of goods sold assuming LIFO and a periodic inventory system.
- Calculate ending inventory and cost of goods sold assuming the average cost method and a periodic inventory system.

Caterpillar, Inc. is one of the world's largest manufacturers of construction, mining, agricultural, and forestry machinery. The following disclosure is included in the company's 2004 financial statements:

| Year | Net Income | Change in Net Income |
|------|------------|----------------------|
| 2004 | \$1,200 | \$1,200 |
| 2005 | \$1,300 | \$1,300 |
| 2006 | \$1,400 | \$1,400 |
| 2007 | \$1,500 | \$1,500 |
| 2008 | \$1,600 | \$1,600 |
| 2009 | \$1,700 | \$1,700 |
| 2010 | \$1,800 | \$1,800 |
| 2011 | \$1,900 | \$1,900 |
| 2012 | \$2,000 | \$2,000 |
| 2013 | \$2,100 | \$2,100 |
| 2014 | \$2,200 | \$2,200 |
| 2015 | \$2,300 | \$2,300 |
| 2016 | \$2,400 | \$2,400 |
| 2017 | \$2,500 | \$2,500 |
| 2018 | \$2,600 | \$2,600 |
| 2019 | \$2,700 | \$2,700 |
| 2020 | \$2,800 | \$2,800 |
| 2021 | \$2,900 | \$2,900 |
| 2022 | \$3,000 | \$3,000 |
| 2023 | \$3,100 | \$3,100 |
| 2024 | \$3,200 | \$3,200 |
| 2025 | \$3,300 | \$3,300 |
| 2026 | \$3,400 | \$3,400 |
| 2027 | \$3,500 | \$3,500 |
| 2028 | \$3,600 | \$3,600 |
| 2029 | \$3,700 | \$3,700 |
| 2030 | \$3,800 | \$3,800 |
| 2031 | \$3,900 | \$3,900 |
| 2032 | \$4,000 | \$4,000 |
| 2033 | \$4,100 | \$4,100 |
| 2034 | \$4,200 | \$4,200 |
| 2035 | \$4,300 | \$4,300 |
| 2036 | \$4,400 | \$4,400 |
| 2037 | \$4,500 | \$4,500 |
| 2038 | \$4,600 | \$4,600 |
| 2039 | \$4,700 | \$4,700 |
| 2040 | \$4,800 | \$4,800 |
| 2041 | \$4,900 | \$4,900 |
| 2042 | \$5,000 | \$5,000 |
| 2043 | \$5,100 | \$5,100 |
| 2044 | \$5,200 | \$5,200 |
| 2045 | \$5,300 | \$5,300 |
| 2046 | \$5,400 | \$5,400 |
| 2047 | \$5,500 | \$5,500 |
| 2048 | \$5,600 | \$5,600 |
| 2049 | \$5,700 | \$5,700 |
| 2050 | \$5,800 | \$5,800 |
| 2051 | \$5,900 | \$5,900 |
| 2052 | \$6,000 | \$6,000 |
| 2053 | \$6,100 | \$6,100 |
| 2054 | \$6,200 | \$6,200 |
| 2055 | \$6,300 | \$6,300 |
| 2056 | \$6,400 | \$6,400 |
| 2057 | \$6,500 | \$6,500 |
| 2058 | \$6,600 | \$6,600 |
| 2059 | \$6,700 | \$6,700 |
| 2060 | \$6,800 | \$6,800 |
| 2061 | \$6,900 | \$6,900 |
| 2062 | \$7,000 | \$7,000 |
| 2063 | \$7,100 | \$7,100 |
| 2064 | \$7,200 | \$7,200 |
| 2065 | \$7,300 | \$7,300 |
| 2066 | \$7,400 | \$7,400 |
| 2067 | \$7,500 | \$7,500 |
| 2068 | \$7,600 | \$7,600 |
| 2069 | \$7,700 | \$7,700 |
| 2070 | \$7,800 | \$7,800 |
| 2071 | \$7,900 | \$7,900 |
| 2072 | \$8,000 | \$8,000 |
| 2073 | \$8,100 | \$8,100 |
| 2074 | \$8,200 | \$8,200 |
| 2075 | \$8,300 | \$8,300 |
| 2076 | \$8,400 | \$8,400 |
| 2077 | \$8,500 | \$8,500 |
| 2078 | \$8,600 | \$8,600 |
| 2079 | \$8,700 | \$8,700 |
| 2080 | \$8,800 | \$8,800 |
| 2081 | \$8,900 | \$8,900 |
| 2082 | \$9,000 | \$9,000 |
| 2083 | \$9,100 | \$9,100 |
| 2084 | \$9,200 | \$9,200 |
| 2085 | \$9,300 | \$9,300 |
| 2086 | \$9,400 | \$9,400 |
| 2087 | \$9,500 | \$9,500 |
| 2088 | \$9,600 | \$9,600 |
| 2089 | \$9,700 | \$9,700 |
| 2090 | \$9,800 | \$9,800 |
| 2091 | \$9,900 | \$9,900 |
| 2092 | \$10,000 | \$10,000 |
| 2093 | \$10,100 | \$10,100 |
| 2094 | \$10,200 | \$10,200 |
| 2095 | \$10,300 | \$10,300 |
| 2096 | \$10,400 | \$10,400 |
| 2097 | \$10,500 | \$10,500 |
| 2098 | \$10,600 | \$10,600 |
| 2099 | \$10,700 | \$10,700 |
| 2100 | \$10,800 | \$10,800 |
| 2101 | \$10,900 | \$10,900 |
| 2102 | \$11,000 | \$11,000 |
| 2103 | \$11,100 | \$11,100 |
| 2104 | \$11,200 | \$11,200 |
| 2105 | \$11,300 | \$11,300 |
| 2106 | \$11,400 | \$11,400 |
| 2107 | \$11,500 | \$11,500 |
| 2108 | \$11,600 | \$11,600 |
| 2109 | \$11,700 | \$11,700 |
| 2110 | \$11,800 | \$11,800 |
| 2111 | \$11,900 | \$11,900 |
| 2112 | \$12,000 | \$12,000 |
| 2113 | \$12,100 | \$12,100 |
| 2114 | \$12,200 | \$12,200 |
| 2115 | \$12,300 | \$12,300 |
| 2116 | \$12,400 | \$12,400 |
| 2117 | \$12,500 | \$12,500 |
| 2118 | \$12,600 | \$12,600 |
| 2119 | \$12,700 | \$12,700 |
| 2120 | \$12,800 | \$12,800 |
| 2121 | \$12,900 | \$12,900 |
| 2122 | \$13,000 | \$13,000 |
| 2123 | \$13,100 | \$13,100 |
| 2124 | \$13,200 | \$13,200 |
| 2125 | \$13,300 | \$13,300 |
| 2126 | \$13,400 | \$13,400 |
| 2127 | \$13,500 | \$13,500 |
| 2128 | \$13,600 | \$13,600 |
| 2129 | \$13,700 | \$13,700 |
| 2130 | \$13,800 | \$13,800 |
| 2131 | \$13,900 | \$13,900 |
| 2132 | \$14,000 | \$14,000 |
| 2133 | \$14,100 | \$14,100 |
| 2134 | \$14,200 | \$14,200 |
| 2135 | \$14,300 | \$14,300 |
| 2136 | \$14,400 | \$14,400 |
| 2137 | \$14,500 | \$14,500 |
| 2138 | \$14,600 | \$14,600 |
| 2139 | \$14,700 | \$14,700 |
| 2140 | \$14,800 | \$14,800 |
| 2141 | \$14,900 | \$14,900 |
| 2142 | \$15,000 | \$15,000 |
| 2143 | \$15,100 | \$15,100 |
| 2144 | \$15,200 | \$15,200 |
| 2145 | \$15,300 | \$15,300 |
| 2146 | \$15,400 | \$15,400 |
| 2147 | \$15,500 | \$15,500 |
| 2148 | \$15,600 | \$15,600 |
| 2149 | \$15,700 | \$15,700 |
| 2150 | \$15,800 | \$15,800 |
| 2151 | \$15,900 | \$15,900 |
| 2152 | \$16,000 | \$16,000 |
| 2153 | \$16,100 | \$16,100 |
| 2154 | \$16,200 | \$16,200 |
| 2155 | \$16,300 | \$16,300 |
| 2156 | \$16,400 | \$16,400 |
| 2157 | \$16,500 | \$16,500 |
| 2158 | \$16,600 | \$16,600 |
| 2159 | \$16,700 | \$16,700 |
| 2160 | \$16,800 | \$16,800 |
| 2161 | \$16,900 | \$16,900 |
| 2162 | \$17,000 | \$17,000 |
| 2163 | \$17,100 | \$17,100 |
| 2164 | \$17,200 | \$17,200 |
| 2165 | \$17,300 | \$17,300 |
| 2166 | \$17,400 | \$17,400 |
| 2167 | \$17,500 | \$17,500 |
| 2168 | \$17,600 | \$17,600 |
| 2169 | \$17,700 | \$17,700 |
| 2170 | \$17,800 | \$17,800 |
| 2171 | \$17,900 | \$17,900 |
| 2172 | \$18,000 | \$18,000 |
| 2173 | \$18,100 | \$18,100 |
| 2174 | \$18,200 | \$18,200 |
| 2175 | \$18,300 | \$18,300 |
| 2176 | \$18,400 | \$18,400 |
| 2177 | \$18,500 | \$18,500 |
| 2178 | \$18,600 | \$18,600 |
| 2179 | \$18,700 | \$18,700 |
| 2180 | \$18,800 | \$18,800 |
| 2181 | \$18,900 | \$18,900 |
| 2182 | \$19,000 | \$19,000 |
| 2183 | \$19,100 | \$19,100 |
| 2184 | \$19,200 | \$19,200 |
| 2185 | \$19,300 | \$19,300 |
| 2186 | \$19,400 | \$19,400 |
| 2187 | \$19,500 | \$19,500 |
| 2188 | \$19,600 | \$19,600 |
| 2189 | \$19,700 | \$19,700 |
| 2190 | \$19,800 | \$19,800 |
| 2191 | \$19,900 | \$19,900 |
| 2192 | \$20,000 | \$20,000 |
| 2193 | \$20,100 | \$20,100 |
| 2194 | \$20,200 | \$20,200 |
| 2195 | \$20,300 | \$20,300 |
| 2196 | \$20,400 | \$20,400 |
| 2197 | \$20,500 | \$20,500 |
| 2198 | \$20,600 | \$20,600 |
| 2199 | \$20,700 | \$20,700 |
| 2200 | \$20,800 | \$20,800 |
| 2201 | \$20,900 | \$20,900 |
| 2202 | \$21,000 | \$21,000 |
| 2203 | \$21,100 | \$21,100 |
| 2204 | \$21,200 | \$21,200 |
| 2205 | \$21,300 | \$21,300 |
| 2206 | \$21,400 | \$21,400 |
| 2207 | \$21,500 | \$21,500 |
| 2208 | \$21,600 | \$21,600 |
| 2209 | \$21,700 | \$21,700 |
| 2210 | \$21,800 | \$21,800 |
| 2211 | \$21,900 | \$21,900 |
| 2212 | \$22,000 | \$22,000 |
| 2213 | \$22,100 | \$22,100 |
| 2214 | \$22,200 | \$22,200 |
| 2215 | \$22,300 | \$22,300 |
| 2216 | \$22,400 | \$22,400 |
| 2217 | \$22,500 | \$22,500 |
| 2218 | \$22,600 | \$22,600 |
| 2219 | \$22,700 | \$22,700 |
| 2220 | \$22,800 | \$22,800 |
| 2221 | \$22,900 | \$22,900 |
| 2222 | \$23,000 | \$23,000 |
| 2223 | \$23,100 | \$23,100 |
| 2224 | \$23,200 | \$23,200 |
| 2225 | \$23,300 | \$23,300 |
| 2226 | \$23,400 | \$23,400 |
| 2227 | \$23,500 | \$23,500 |
| 2228 | \$23,600 | \$23,600 |
| 2229 | \$23,700 | \$23,700 |
| 2230 | \$23,800 | \$23,800 |
| 2231 | \$23,900 | \$23,900 |
| 2232 | \$24,000 | \$24,000 |
| 2233 | \$24,100 | \$24,100 |
| 2234 | \$24,200 | \$24,200 |
| 2235 | \$24,300 | \$24,300 |
| 2236 | \$24,400 | \$24,400 |
| 2237 | \$24,500 | \$24,500 |
| 2238 | \$24,600 | \$24,600 |
| 2239 | \$24,700 | \$24,700 |
| 2240 | \$24,800 | \$24,800 |
| 2241 | \$24,900 | \$24,900 |
| 2242 | \$25,000 | \$25,000 |
| 2243 | \$25,100 | \$25,100 |
| 2244 | \$25,200 | \$25,200 |
| 2245 | \$25,300 | \$25,300 |
| 2246 | \$25,400 | \$25,400 |
| 2247 | \$25,500 | \$25,500 |
| 2248 | \$25,600 | \$25,600 |
| 2249 | \$25,700 | \$25,700 |
| 2250 | \$25,800 | \$25,800 |
| 2251 | \$25,900 | \$25,900 |
| 2252 | \$26,000 | \$26,000 |
| 2253 | \$26,100 | \$26,100 |
| 2254 | \$26,200 | \$26,200 |
| 2255 | \$26,300 | \$26,300 |
| 2256 | \$26,400 | \$26,400 |
| 2257 | \$26,500 | \$26,500 |
| 2258 | \$26,600 | \$26,600 |
| 2259 | \$26,700 | \$26,700 |
| 2260 | \$26,800 | \$26,800 |
| 2261 | \$26,900 | \$26,900 |
| 2262 | \$27,000 | \$27,000 |
| 2263 | \$27,100 | \$27,100 |
| 2264 | \$27,200 | \$27,200 |
| 2265 | \$27,300 | \$27,300 |
| 2266 | \$27,400 | \$27,400 |
| 2267 | \$27,500 | \$27,500 |
| 2268 | \$27,600 | \$27,600 |
| 2269 | \$27,700 | \$27,700 |
| 2270 | \$27,800 | \$27,800 |
| 2271 | \$27,900 | \$27,900 |
| 2272 | \$28,000 | \$28,000 |
| 2273 | \$28,100 | \$28,100 |
| 2274 | \$28,200 | \$28,200 |
| 2275 | \$28,300 | \$28,300 |
| 2276 | \$28,400 | \$28,400 |
| 2277 | \$28,500 | \$28,500 |
| 2278 | \$28,600 | \$28,600 |
| 2279 | \$28,700 | \$28,700 |
| 2280 | \$28,800 | \$28,800 |
| 2281 | \$28,900 | \$28,900 |
| 2282 | \$29,000 | \$29,000 |
| 2283 | \$29,100 | \$29,100 |
| 2284 | \$29,200 | \$29,200 |
| 2285 | \$29,300 | \$29,300 |
| 2286 | \$29,400 | \$29,400 |
| 2287 | \$29,500 | \$29,500 |
| 2288 | \$29,600 | \$29,600 |
| 2289 | \$29,700 | \$29,700 |
| 2290 | \$29,800 | \$29,800 |
| 2291 | \$29,900 | \$29,900 |
| 2292 | \$30,000 | \$30,000 |
| 2293 | \$30,100 | \$30,100 |
| 2294 | \$30,200 | \$30,200 |
| 2295 | \$30,300 | \$30,300 |
| 2296 | \$30,400 | \$30,400 |
| 2297 | \$30,500 | \$30,500 |
| 2298 | \$30,600 | \$30,600 |
| 2299 | \$30,700 | \$30,700 |
| 2300 | \$30,800 | \$30,800 |
| 2301 | \$30,900 | \$30,900 |
| 2302 | \$31,000 | \$31,000 |
| 2303 | \$31,100 | \$31,100 |
| 2304 | \$31,200 | \$31,200 |
| 2305 | \$31,300 | \$31,300 |
| 2306 | \$31,400 | \$31,400 |
| 2307 | \$31,500 | \$31,500 |
| 2308 | \$31,600 | \$31,600 |
| 2309 | \$31,700 | \$31,700 |
| 2310 | \$31,800 | \$31,800 |
| 2311 | \$31,900 | \$31,900 |
| 2312 | \$32,000 | \$32,000 |
| 2313 | \$32,100 | \$32,100 |
| 2314 | \$32,200 | \$32,200 |
| 2315 | \$32,300 | \$32,300 |
| 2316 | \$32,400 | \$32,400 |
| 2317 | \$32,500 | \$32,500 |
| 2318 | \$32,600 | \$32,600 |
| 2319 | \$32,700 | \$32,700 |
| 2320 | \$32,800 | \$32,800 |
| 2321 | \$32,900 | \$32,900 |
| 2322 | \$33,000 | \$33,000 |
| 2323 | \$33,100 | \$33,100 |
| 2324 | \$33,200 | \$33,200 |
| 2325 | \$33,300 | \$33,300 |
| 2326 | \$33,400 | \$33,400 |
| 2327 | \$33,500 | \$33,500 |
| 2328 | \$33,600 | \$33,600 |
| 2329 | \$33,700 | \$33,700 |
| 2330 | \$33,800 | \$33,800 |
| 2331 | \$33,900 | \$33,900 |
| 2332 | \$34,000 | \$34,000 |
| 2333 | \$34,100 | \$34,100 |
| 2334 | \$34,200 | \$34,200 |
| 2335 | \$34,300 | \$34,300 |
| 2336 | \$34,400 | \$34,400 |
| 2337 | \$34,500 | \$34,500 |
| 2338 | \$34,600 | \$34,600 |
| 2339 | \$34,700 | \$34,700 |
| 2340 | \$34,800 | \$34,800 |
| 2341 | \$34,900 | \$34,900 |
| 2342 | \$35,000 | \$35,000 |
| 2343 | \$35,100 | \$35,100 |
| 2344 | \$35,200 | \$35,200 |
| 2345 | \$35,300 | \$35,300 |
| 2346 | \$35,400 | \$35,400 |
| 2347 | \$35,500 | \$35,500 |
| 2348 | \$35,600 | \$35,600 |
| 2349 | \$35,700 | \$35,700 |
| 2350 | \$35,800 | \$35,800 |
| 2351 | \$35,900</ | |

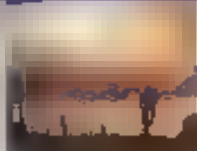
On January 1, 2006, Avondale Lumber adopted the dollar-value LIFO inventory method. The inventory value for its one inventory pool on this date was \$260,000. An internally generated end-of-the-year-to-compare ending inventory to base-year Year-end inventories at year-end prices and cost indexes for its one inventory pool were as follows:

| Year-Ended
December 31 | Inventory at
Year-End Costs | Cost Index
(Relative to Base Year) |
|---------------------------|--------------------------------|---------------------------------------|
| 2006 | \$140,000 | 102 |
| 2007 | 200,000 | 106 |
| 2008 | 260,000 | 107 |
| 2009 | 430,000 | 110 |

Required

1. Calculate inventory amounts at the end of each year.

BROADEN YOUR PERSPECTIVE



Like the Merry-Go-Round

Apply your critical-thinking ability to the knowledge you've gained. These pages will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it to real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Merry-Go-Round Enterprises, the clothing retailer for dedicated followers of young men's and women's fashion, was looking many us a company to warehouse 1993, and the Tampa, Maryland-based outfit had just announced the acquisition of Chess King, a rival clothing chain, a move that would give it the biggest share of the young men's clothing market. Merry-Go-Round told brokerage firms analysts that the purchase would add \$1.3 million, or 15 cents a share, to profits for the year. So some Wall Street analysts raised their earnings estimates for Merry-Go-Round. The company's stock rose \$2.13, or 15 percent, to \$14.7 on the day of the buyout. Merry-Go-Round was then up 50 percent in its stock. In January 1994, Merry-Go-Round was worth \$1.3 billion. In 1993 the chain owned 460 stores in 44 states, mostly under the Chess King and Merry-Go-Round names.

Merry-Go-Round annual report for 1993, prepared January 10, 1994, reported a sales growth to \$1.3 billion from \$760 million. A portion of the company's balance sheet is reproduced below.

| | Jan. 30, 1993 | Feb. 1, 1992 |
|---------------------------|---------------|--------------|
| Assets | | |
| Cash and cash equivalents | \$40,000,000 | \$29,760,000 |
| Marketable securities | | 9,700,000 |
| Receivables | 6,400,000 | 6,400,000 |
| Merchandise inventories | \$2,400,000 | \$9,900,000 |

But Merry-Go-Round spun out. The company lost \$544,000 in the first six months of 1994, compared with earnings of \$13.5 million in the first half of 1993. In the fall of 1992, Leonard "Bugsie" Weintraub, Merry-Go-Round's chairman and founder who had started the company in 1968, boarded up his Merry-Go-Round in Aspen, Colorado, and returned to management after a 12-year hiatus. But the pony-tailed, shirt-sleeved entrepreneur—the inspiration for the character Bugsie in the movie *Diner*—couldn't save his company from bankruptcy. In January 1994, the company filed for Chapter 11 protection in Baltimore. Since crumbled below \$?

Required

1. In retrospect, can you identify any advance warning at the date of the financial statements of the company's impending bankruptcy?

Adapted from Jonathan Burton, "The Collapse," *Worth* June 1994 pp. 62-66

HappiCo. imports household appliances. Each model has many variations and each unit has an identification number. HappiCo pays all costs for getting the goods from the port to its central warehouse in Des Moines. After repackaging, the goods are consigned to retailers. A retailer makes a sale, immediately pays the appliance from HappiCo, and pays the balance due within one week.

To alleviate the uncertainty of the goods at a Minneapolis supplier, some were reshipped to a Kansas City retailer where they were still held in inventory at December 31, 2006. HappiCo paid the cost of this shipment. HappiCo uses the specific identification inventory costing method.

Required

- In regard to the specific identification inventory costing method:
 - Describe its key elements.
 - Discuss why it is appropriate for Hargila to use this method.
- What criteria must Hargila meet to determine inventory carrying amount of Zeleux?
 - What estimate of cost must it base its inventory carrying amounts on?
- What disclosures must be made in Hargila's 2006 income statement? Ignore lower of cost or market in determining.

AICPA adapted

Information on the following problem is available at <http://www.aicpa.org>.

LIFO versus FIFO

• 14-205

Information on the following problem is available at <http://www.aicpa.org>.

LIFO versus FIFO

• 14-206

Information on the following problem is available at <http://www.aicpa.org>.

LIFO versus FIFO

• 14-207

Ethics Case 14-6
Profit manipulation

• 14-208

Real World Case 14-7
Effects of inventory valuation methods: LIFO and FIFO

• 14-209

You have just been hired as a consultant to Tangier Industries, a newly formed company. The company president, John Meeks, is seeking your advice as to the appropriate inventory method Tangier should use. He has a number of units of goods that he needs to allocate the change in LIFO and FIFO. He is aware that FIFO can be better for tax purposes, but FIFO has certain advantages for financial reporting. He is not sure which method will be most beneficial to his firm and is seeking your advice.

Required

Prepare a report for the president describing the factors that should be considered by Tangier in choosing a method for LIFO and FIFO.

An accounting intern at a local CPA firm was reviewing the financial statements of a client in the electronics industry. The intern noticed that the client used the FIFO method in determining ending inventory and cost of goods sold. When she asked a colleague why the firm used FIFO instead of LIFO, she was told that the firm used FIFO to minimize income tax liability. This response puzzled the intern because she thought that LIFO would minimize income tax liability.

Required

What would you tell the intern to resolve the confusion?

At the end of 2006, the Biggle Company performed its annual physical inventory count. John Williams, the manager in charge of the physical count, was told that an additional \$21,000 in inventory had been found and was to be added to the customer's bill. He was told that the ending inventory balance. John was of the opinion that the merchandise shipped should be excluded from the ending inventory since Biggle was not a physical possession of the merchandise.

Required

Review the situation and indicate why John's opinion might be incorrect.

In 2005 the Moncrief Company purchased a new computer. The right to use the software was purchased at a price of \$100,000. The software was purchased at a price of \$100,000. The software was purchased at a price of \$100,000. The software was purchased at a price of \$100,000.

Moncrief uses a periodic inventory system and the LIFO inventory method. Last in 2006, the following information is available concerning the inventory of Zeleux:

| | |
|---|-------------|
| Beginning inventory, 1/1/06 (10,000 units @ \$30) | \$ 300,000 |
| Purchases (40,000 units @ \$30) | 1,200,000 |
| Sales (35,000 units @ \$40) | \$4, 00,000 |

By the end of the year, the purchase price of Zeleux had risen to \$40 per unit. On December 31, 2006, three days before year-end, Moncrief is in a position to purchase 20,000 additional units of Zeleux at the \$40 per unit price. Due to the increase in purchase price, Moncrief will increase the selling price to \$50 per unit. Inventory on hand before the purchase, 15,000 units, is sufficient to meet the need of merchandise and the company does not anticipate any significant changes in purchase price during 2007.

Required

- Determine the effect of the purchase of the additional 20,000 units on the 2006 gross profit from the sale of Zeleux and the payment due to the vendor.
- Discuss the ethical dilemma Moncrief faces in determining whether or not the additional units should be purchased.

Income statement and balance sheet information was abstracted from a recent annual report of Safeway, Inc., one of the world's largest food retailers, appears below.

| Balanced Sheets | | |
|-------------------------|----------------------------|----------|
| In millions | | |
| | At Dec. 31 | |
| | 2004 | 2003 |
| Current assets: | | |
| Merchandise inventories | \$2,741 | \$2,642 |
| Income Statements | | |
| In millions | | |
| | For the Year Ended Dec. 31 | |
| | 2004 | 2003 |
| Net sales | \$35,823 | \$35,727 |
| Cost of goods sold | 25,228 | 25,063 |
| Gross profit | \$10,595 | \$10,664 |

The significant accounting policies for Safeway contained the following:

Merchandise Inventories

Merchandise inventory at \$7,443 million at year-end 2004 and \$7,443 million at year-end 2003, valued at the lower of cost or market. Inventory is valued at replacement cost if that cost is less than the lower of cost or market; otherwise, inventory is valued at cost or market. The FIFO cost of inventory approximates replacement cost.

Required:

1. Why is Safeway disclosing the replacement or current cost of its LIFO inventory?
2. Assuming that year-end replacement/current cost figures approximate FIFO (first-in, first-out) values, estimate what the beginning and ending inventory balances for the 2003 fiscal year would have been if Safeway had used FIFO for all of its inventories.
3. Estimate the effect on cost of goods sold, that is, would it have been greater or less and by how much? (For the 2004 fiscal year if Safeway had used FIFO for all of its inventories.)

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, assembly, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. (Some foreign companies file voluntarily.) Form 10-K or 10-QSB, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the internet.

Required:

1. Access EDGAR on the internet. The web address is www.sec.gov/edgar/sec.gov (edgar.sec.gov/jsp/edgar/sec). From Procter & Gamble's Corporate website, the process of accessing data from EDGAR is as follows:
2. Search for Whole Foods Market. (Use Access the 10-K listing for the most recent fiscal year.) Search or scroll to find the Financial Statements and related notes.
3. Answer the following questions related to the company's disclosures:
 - a. What method(s) does the company use to value its inventories?
 - b. Calculate what cost of sales would have been for the year if the company had used FIFO to value its inventory.
 - c. Calculate inventory turnover for the year using the reported method.

Heineken, based in Amsterdam, is one of the world's largest international beverage companies, selling its products in some 150 countries. The current assets disclosure note included in recent financial statements of the company is reproduced below. The note provides information on the company's method of valuing its inventory stocks.

1. Why is Safeway disclosing the replacement or current cost of its LIFO inventory?

2. Assuming that year-end replacement/current cost figures approximate FIFO (first-in, first-out) values, estimate what the beginning and ending inventory balances for the 2003 fiscal year would have been if Safeway had used FIFO for all of its inventories.

3. Estimate the effect on cost of goods sold, that is, would it have been greater or less and by how much? (For the 2004 fiscal year if Safeway had used FIFO for all of its inventories.)

1. Why is Safeway disclosing the replacement or current cost of its LIFO inventory?

2. Assuming that year-end replacement/current cost figures approximate FIFO (first-in, first-out) values, estimate what the beginning and ending inventory balances for the 2003 fiscal year would have been if Safeway had used FIFO for all of its inventories.

3. Estimate the effect on cost of goods sold, that is, would it have been greater or less and by how much? (For the 2004 fiscal year if Safeway had used FIFO for all of its inventories.)

Current Assets (in part)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

Answer: **100%**

in the laws of the Netherlands the same principles of adequate secondary valuation in the Netherlands & in the Central States.

Malet Corporation uses the unit LIFO inventory method. The costs of the company's products have steadily risen since the company began operations in 1990 and cost increases are expected to continue. The chief financial officer of the company would like to compare using LIFO (increase of tax liability). However, the controller, Judy Malet, would like to reduce the corresponding costs of LIFO that steadily increased over the years as new products have been added to the company's product line. He suggested the use of the dollar-value LIFO method. The chief financial officer has asked Judy to describe a dollar-value LIFO procedure.

are used

Describe the dollar-value LIFO procedure.

[illegible]

that of the Dallas Southern Company. As the
and harder to find. Things have been a little better
for the city has been building up and the city
won't have a better idea. My collection were
the company's head office for 4 1/2 years
through will go on immediately and then we
1943). The 34. 34 is Harbaugh's fee for building the
with Harbaugh's committee and to his agent's
we need for the other parties to be made a
for 4 1/2 years for the same and to be
for 4 1/2 years for the same and to be

Figure 11

Express the highest FASB Standard in accordance through FARS the FASB Standard shall also be a determination the appropriate measures to be taken.

2 Prepare the INITIAL entry to record the "sale" of the stock/property and subsequent proceeds

The table below contains selected financial information included in the 2004 financial statements of real estate investment trusts that are members of the Real Estate Roundtable.

| | (\$ in millions) | | | |
|--------------------|------------------|----------|--------------------|---------|
| | General Motors | | Ford Motor Company | |
| | 2004 | 2003 | 2004 | 2003 |
| Balance sheet: | | | | |
| Total assets | \$1 | \$10,960 | \$10,765 | \$9,517 |
| | 2004 | | 2004 | |
| Income statement: | | | | |
| Net sales | \$193,517 | | \$147,134 | |
| Cost of goods sold | 159,951 | | 130,836 | |

Disclosure notes reveal that both companies use the LIFO inventory method to value the majority of their inventories.

| | |
|---------------------------|------|
| Gross profit | 784 |
| Inventory turnover | 7.56 |
| Average days in inventory | 33 |

2. Obtain annual reports from three companies in an industry other than automobiles and compare the management of each company's inventory.

Note: You can obtain copies of annual reports from your library, from friends who are shareholders, from the investor relations department of the corporations, from a friendly stockbroker or from EDGAR (Electronic Data Gathering, Analysis, and Retrieval) on the Internet (wwwsec.gov) or through bizpage.com or bizpage.com.

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for class discussion, group projects, and writing assignments. The case along with Professor's Discussion Material, can be obtained from the Deanne Foundation at its website www.truebloodcases.com.

Case #2-09: GreenChopper

This case concerns an exclusive supply agreement and the valuation of inventory.

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix H located at the back of this text.

Required:

1. Why does merchandise inventory not appear in FedEx's balance sheet? Does the balance sheet report any type of inventory?
2. What method does FedEx use to value its inventory?

Chapter 8: Inventory
Inventory valuation

Chapter 8: Inventory
Reporting of
inventory
FedEx Corporation



CHAPTER

Inventories: Additional Issues

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Understand and apply the lower-of-cost-and-market rule to value inventories
- LO2 Estimate ending inventory and cost of goods sold by the gross profit method
- LO3 Estimate ending inventory and cost of goods sold by the retail inventory method, applying the various cost flow methods
- LO4 Explain how the retail inventory method can be used to approximate the lower-of-cost-or-market rule
- LO5 Determine ending inventory using the dollar-value LIFO retail inventory method
- LO6 Explain the appropriate accounting treatment required when a change in inventory method is made
- LO7 Explain the appropriate accounting treatment required when an inventory error is discovered

PART A

REPORTING LOWER OF COST OR MARKET

In the previous chapter you learned that there are several methods a company could use to determine the cost of inventory at the end of a period and the corresponding cost of sales would for the period. You also learned that it is important for a company to disclose the inventory method that it uses. Otherwise, investors and creditors would be unable to compare accounting information from company to company. This disclosure typically is made in the summary of significant accounting policies accompanying the financial statements. Coca-Cola Company's inventory method disclosure is shown in Graphic 9-1.

GRAPHIC 9-1

Disclosure of Inventory Method—Coca-Cola Company

Summary of Significant Accounting Policies (in part) Inventories

| |
|--|
| Inventory is valued at the lower of cost or market. We use the average cost method to determine the cost of inventory. |
|--|

• LQ1

FINANCIAL REPORTING CASE

Case 9-1

The LIFO method is required by GAAP.

The disclosure indicates that Coca-Cola uses both the average cost and FIFO methods to determine the cost of its inventories. Notice that inventories actually are valued at the lower of cost or market. Assets are initially valued at their historical costs, but a departure from cost is warranted when the utility of an asset (its probable future economic benefits) is no longer as great as its cost. Accounts receivable, for example, are valued at net realizable value by reducing initial valuation with an allowance for noncollectible accounts.

The utility, or benefits, a company receives from inventory result from the ultimate sale of the goods. So deterioration, obsolescence, changes in price levels, or any situation that might compromise this inventory's salability impairs that utility. The lower-of-cost-or-market (LCM) approach to valuing inventory was developed to avoid reporting inventory at an amount greater than the benefits it can provide. Reporting inventories at LCM causes losses to be recognized in the period the value of inventory declines below its cost rather than in the period in that the goods ultimately are sold. LCM is not an optional approach to valuing inventory; it is required by GAAP.

The tremendous growth of the Internet that took place during the decade of the 90s allowed companies that produced products that support the Internet to become extremely profitable. Cisco Systems, Inc., the world's largest networking products company, is one of those companies. In 1993, Cisco reported \$649 million in sales revenue. By 2000, sales had reached nearly \$19 billion! Growth rates of 30% year-in-year were commonplace. The company's market capitalization (price per share of common stock multiplied by the number of common shares outstanding) soared to over \$500 billion. To keep pace with this growth in sales, inventories swelled from \$7 million in 1993 to over \$2.5 billion in 2000.

At the end of 2000, corporate spending on Internet infrastructure took a drastic downturn. Many dot-com companies went bankrupt, and companies like Cisco saw their fantastic growth rates nosedive. Early in 2001, the company reported its first-ever quarterly loss and, due to declining demand for its products, recorded an inventory write-down in excess of \$2 billion. The company's once lofty market capitalization dropped to just over \$10 billion.

CISCO POSTS \$58M LOSS ON HUGE WRITE-DOWNS

Technology giant Cisco Systems posted on Tuesday a third-quarter net loss of \$2.6 billion, its first ever, following a write-down of inventory, restructuring costs and a sharp drop in corporate spending.

and a write-down of over \$2 billion in excess inventory.

Cisco said 80 percent of the inventory charge relates to raw materials, such as semiconductors, and is not expected to be recovered.

Most of the excess inventory was sold at a price below cost to Cisco's chief financial officer, Mr. Larry Green, said in a conference call.

Determining Market Value

For the above reasons, despite the fact that the mean of the 40 forecasts is approximately the same as the actual value, the forecasts were sold. However, in the *Research Bulletin No. 1*, the Bank of Canada says that the forecasts are "not to be taken as a guide to the future" and that the "forecast is not to be used by individuals or institutions except as market information."

- Exceed the net realizable value (that is, estimated selling price in the ordinary course of business less reasonably predictable costs of completion and disposal)
- Be less than net realizable value reduced by an allowance for an approximately normal profit margin

[illegible]

Let's see how the LCM rate is applied in Illustration 9-1 and then we will discuss its tax consequences.

- b. This number is then compared to cost and the lower of the two is the final inventory.
 c. For item A, cost is lower than market. For each of the other items, the designated market is lower than cost, requiring an adjustment to the carrying value of inventory. We discuss the standard procedure later in the chapter. First, though, let's consider the conceptual justification for the LIFO rule.

Theoretical Merits. What is the logic for designating replacement cost as the principal one of market value in the LCM rule? First, a change in replacement cost usually is a good indicator of the direction of change in selling price. If replacement cost declines, selling price usually will decline, or already has declined. Another reason is that if previously held inventory is revalued at its replacement cost, then the profit margin realized on its disposal likely will approximate the profit margin realizable on the sale of newly acquired items.

The upper limit placed on replacement cost prevents inventory from being valued at an amount above what can be realized from its sale. The lower limit prevents inventory from being valued at an amount below what can be realized from its sale after considering normal margins. For example, consider Item D in our illustration. If Item D is valued at its replacement cost of \$37 without considering the selling or fixed costs, a loss of \$53 (\$90 cost less \$37) would be recognized. If the item is subsequently sold at its current selling price less a discount cost (\$82 = \$76), then a gross profit of \$39 (\$76 less \$37) would be recognized.

This is much higher than its normal profit of 52% ($20\% \times 5/10$) and causes a shifting of income from the period the inventory loss is recognized to the period the item is sold. The net result is that this kind of profit distribution

- the other hand, critics of LCM contend that the method causes limits to be recognized as not actually normal. Critics maintain that if not, it is needless inconsistency in the conservative. Inconsistency is created because LCM recognizes decreases in risk and safety, occur but not increases.

Representative can be
 given a day
 to explain the item
 to the day
 to day

7. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845

Sophia Alexander
 2017 - 2018
 2019 - 2020
 2021 - 2022

PERSPECTIVE

It is the time at which the prices of the lower of the two market is fairly standard around the globe. However, a fair price can be determined for the market in the United States. Market is defined as replacement cost in market. The ending of net realizable price is the fair value of net realizable value less a profit margin. In many other cases, for example in New Zealand market value is defined as net realizable value. The International Accounting Standard 2 also defines market as net realizable value.

ILLUSTRATION 9-1
Lower of Cost or Market

The Collins Company has five inventory items on hand at the end of 2006. The year-end unit costs (determined by applying the average cost method), current unit selling prices, and estimated disposal (selling) costs for each item are presented below. The gross profit ratio for each of the products is 20% of selling price.

| Item | Cost | Replacement Cost | Selling Price | Estimated Disposal Costs |
|------|-------|------------------|---------------|--------------------------|
| A | \$ 30 | \$ | \$120 | \$ 5 |
| B | 100 | 90 | 120 | 20 |
| C | 80 | | 85 | 20 |
| D | 90 | | 100 | 24 |
| E | 95 | 92 | 110 | 24 |

The determination of inventory value is a two-step process. First, determine the designated market value and second, compare the designated market value to cost. The lower of the two is the LCM inventory value.

Inventory is valued at the lower of cost or the designated market value.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|------|------|-------|----------|--|-------|--|
| Item | RC | NRV | NRV - NP | Designated Market Value [Middle Value of (1), (2) and (3)] | Cost | Inventory Value [Lower of (4) and (5)] |
| A | \$55 | \$ 85 | \$65 | \$65 | \$ 30 | \$50 |
| B | 90 | 100 | 76 | 90 | 100 | 90 |
| C | 70 | 65 | 48 | 65 | 80 | 65 |
| D | 37 | 76 | 56 | 56 | 90 | 56 |
| E | 92 | 86 | 64 | 86 | 95 | 86 |

* RC = replacement cost; NRV = net realizable value; NP = normal profit; LCM = lower of cost or market.

Example for item B:

| | |
|----------------------|----------------------------------|
| Selling price | \$120 |
| Less: Disposal costs | (20) |
| NRV | 100 |
| Less: Normal profit | (24) (\$120 selling price × 20%) |
| NRV - NP | \$ 76 |

The practice of recognizing decreases but not increases is not simply an application motivated by conservatism. Recall our discussions in previous chapters on revenue recognition and the realization principle. Recognizing increases in the value of inventory prior to sale would, in most cases, violate the realization principle. Assume that merchandise costing \$100 has a net realizable value of \$150. Recognizing the increase in value would increase pretax income by \$50. This is equivalent to recognizing revenue of \$150, cost of goods sold of \$100, and gross profit of \$50. Either way, pretax income is increased in a period prior to sale of the product. Prior to sale, there usually exists significant uncertainty as to the realizability of the asset to be received. We don't know if the product will be sold, nor the selling price, or the buyer if eventually sold.

The LCM rules stated in *ARB No. 43* are intended as a guide rather than a literal rule. In practice, companies frequently define market as net realizable value. This is a number that is easier to estimate than replacement cost. Also, assuming the NRV does not change when the item is sold, there will be neither gross profit nor additional loss. The entire effect on income is recognized in the period the realizable value drops below cost.

ETHICAL DILEMMA

The Hurley Paper Company, owned and operated by Bill Hurley, manufactures and sells different types of computer paper. The company has reported profits in the majority of years since the company's inception in 1965 and is projecting a profit in 2006 of \$65,000, down from \$95,000 in 2005.

Near the end of 2006, the company is in the process of applying for a bank loan. The proceeds will be used to replace manufacturing equipment necessary to modernize the manufacturing operation. In preparing the financial statements for the year, the chief accountant, Don Davis, mentioned to Bill Hurley that approximately \$45,000 of paper inventory has become obsolete and should be written off as a loss at 2006. Bill is worried that the write-down would lower 2006 income to a level that might cause the bank to refuse the loan. Without the loan, it would be difficult for the company to compete. This could cause potential future business and employees might have to be laid off. Bill is considering what amount 2006 to write down the inventory. Don Davis is contemplating his responsibilities in the situation.

ANS. NO. 43

Companies practice LCM with the paper of cost or market. The company is required to inventory if there is only one department category the company of the cost. The inventory is in the paper can have the cost of significance for accounting purposes. The company, where more than one product or department category exists, applied one of the lower of cost or market, whichever is lower, to the total of the inventory. The result in the market determination of the

APPLYING LOWER OF COST OR MARKET

Lower of cost or market can be applied to individual inventory items, to logical categories of inventory, or to the entire inventory. A major product line can be considered a logical category of inventory. For income tax purposes, the lower-of-cost-or-market rule must be applied on an individual item basis.

Let's return to our illustration and assume the unit amounts pertain to 1,000 units of each inventory item. Also, let's say items A–R and items C–F are two collections of similar items that can be considered logical categories of inventory. Illustration 9-1A compares the LCM valuation according to each of three possible applications.

The final LCM inventory value is different for each of the three applications. The inventory value is \$347,000 if LCM is applied to each item, \$357,000 if it is applied to product line categories, and \$362,000 if applied to the entire inventory. Applying LCM to groups of inventory items will usually cause a higher inventory valuation than if applied on an item-by-item basis because group application permits decreases in the market value of some items to be offset by increases in others. Each approach is acceptable but should be applied consistently from one period to another.

The LCM rule can be applied to individual items, to logical categories of inventory, or to the entire inventory.

ADJUSTING COST TO MARKET

After a company applies the LCM rule and a material write-down of inventory is required, the company has two choices of how to record the reduction. One way found in practice is to list the loss as a separate item in the income statement. An alternative is to include the loss part of the cost of goods sold.

| Loss reduction to LCM inventory | or | Cost of goods sold | or |
|---------------------------------|----|--------------------|----|
| | | Inventory | |

ILLUSTRATION 9-1A

**LCM Determination—
Application at
Different Levels of
Aggregation**

| Item | Cost | Designated
Market Value | Lower-of-Cost-or-Market | | |
|-----------------|------------|----------------------------|-------------------------|--------------------|-----------------------|
| | | | By
Individual Items | By
Product Line | By Total
Inventory |
| A | \$ 50,000 | \$ 45.00 | \$ 50,000 | | |
| B | 90,000 | 90.00 | 90,000 | | |
| Total A & B | \$ 140,000 | \$ 135.00 | | \$ 50,000 | |
| C | \$ 80,000 | \$ 85.00 | 85,000 | | |
| D | 90,000 | 86.00 | 86,000 | | |
| E | 95,000 | 86.00 | 86,000 | | |
| Total C & D & E | \$ 265,000 | \$ 267.00 | | 267,000 | |
| Total | \$415,000 | \$372.00 | \$372,000 | \$ 50,000 | \$ 50,000 |

The *lower-of-cost-or-market* method is used to determine the value of inventory at the end of the period. It is a conservative method of valuation.

Recording the write-down as a separate item more accurately reports the event that it occurred—a loss from holding inventory during a period when inventory value declined. Including this holding loss as part of cost of goods sold has the same effect on earnings, but distorts the relationship between sales and cost of goods sold. Conceptually, cost of goods sold should include only the cost of goods actually sold during the period. Even so, many companies do include the “holding loss” in cost of goods sold.

Recall from our introductory discussion to this chapter that Cisco Systems, Inc., recently reversed an inventory write-down of \$1 billion. To understand how the relationship between sales and cost of goods sold can be distorted, let’s consider the top part of the company’s income statements for the first quarter of 2001 and 2000 shown in Graphic 9-2.

GRAPHIC 9-2

**Partial Income
Statements—Cisco
Systems, Inc.**

| INCOME STATEMENTS (IN PART)
For the Three Months Ended,
millions | | |
|--|-------------------|-------------------|
| | April 29,
2001 | April 29,
2000 |
| Net sales | \$4,433 | \$4,433 |
| Cost of sales | 2,440 | 2,440 |
| Gross profit | \$1,993 | \$2,000 |

Reporting a *gross profit* ratio of 44.9% in 2000 and 44.9% in 2001. The gross profit ratio is calculated as gross profit divided by net sales.

Using the information in the statements, the gross profit ratio dropped from 44.9% in 2000 to 44.9% in 2001. An analyst might conclude that there was a significant deterioration in the markup. The company was able to achieve on its products. However, this assessment is premature. A footnote included in the financial statements for the first quarter of 2001 report said: “During the quarter, we recorded an excess inventory charge of \$2.25 billion classified as cost of sales.” We get a more accurate portrayal of the company’s gross profit ratio if we reduce the cost of goods sold by the inventory charge (write-down):

| | |
|--|---------|
| Sales | \$4,433 |
| Adjusted cost of sales (\$2,440 - 2,250) | 2,190 |
| Adjusted gross profit | 2,243 |
| Adjusted gross profit ratio | 50.6% |

Cisco’s gross profit ratio did decline from the prior year, but not nearly as drastically as the reported financial statement information would lead us to believe.

Regardless of which method we use to record the write down, the reduced inventory cost becomes the new cost basis for subsequent reporting, and if the inventory value later recovers prior to its sale, we do not write it back up.³

ADDITIONAL CONSIDERATION

When limited circumstances, businesses are allowed under GAAP to carry inventory at market value above cost. ARB 43 restricted this approach to precious metals and gemstones, minerals which are interchangeable and have an intermediate or low volatility at quoted prices. The method of writing inventory up to market value must recognize the production basis of recognizing revenue in a conservative, full disclosure way. The cost of inventory is used at market is required.

CONCEPT REVIEW EXERCISE

The Strand Company sells four products that can be grouped into two major categories. Information necessary to apply the LIFO rule at the end of 2016 for each of the four products is shown below. The normal profit margin for each of the products is 25% of selling price. The company records any losses from adjusting cost to market as separate income statement items and reduces inventory directly.

**LOWER OF COST
OR MARKET**

| Product | Cost | Replacement Cost | Selling Price | Disposal Costs |
|---------|-----------|------------------|---------------|----------------|
| 101 | \$ 80,500 | \$ 65,000 | \$160,000 | \$30,000 |
| 102 | 175,000 | 160,000 | 200,000 | 25,000 |
| 201 | 160,000 | 140,000 | 180,000 | 50,000 |
| 103 | 45,000 | 20,000 | 80,000 | 22,000 |

note: 101 and 102 are in category A and products 201 and 202 are in category B

- To estimate the designated market value for each of the four products according to the LIFO rule:
 determine the amount of the loss from write-down of inventory that would be required applying the LIFO rule to:
 a. individual items
 b. major categories
 c. the entire inventory

Verfahren: the designated market value for each of the four products according to the M rule

SOLUTION

| Product | (1) | (2) | (3) | | (4) |
|---------|-----------|---|-----------|----|--|
| | RC | NRV (Selling Price less Disposal Costs) | NRV | MP | Designated Market Value (Middle Value of (1), (2) & (3)) |
| | | | | | |
| 101 | \$ 85,000 | \$ 10,000 | \$ 95,000 | | \$ 90,000 |
| 102 | 160,000 | 175,000 | 2,000 | | 160,000 |
| 201 | 180,000 | 10,000 | 8,000 | | 30,000 |
| 202 | 20,000 | 38,000 | 2,000 | | 23,000 |

ρ^1 — это представление ρ на \mathfrak{g} , $\rho^1(X) = \rho(X)$ для $X \in \mathfrak{g}$. Тогда ρ^1 — это представление ρ на \mathfrak{g} , $\rho^1(X) = \rho(X)$ для $X \in \mathfrak{g}$.

א. אברהם בן אברהם אברהם אברהם אברהם
ב. אברהם בן אברהם אברהם אברהם אברהם
ג. אברהם בן אברהם אברהם אברהם אברהם
ד. אברהם בן אברהם אברהם אברהם אברהם

Calculation of NRV and NP

| Product | NRV | NP | NRV | NP |
|---------|-----------|-------------------------------|-----------|----|
| 101 | \$130,000 | \$40,000
(25% × \$160,000) | \$ 90,000 | |
| 102 | 175,000 | 50,000
(25% × \$200,000) | 125,000 | |
| 201 | 130,000 | 45,000
(25% × \$180,000) | 85,000 | |
| 202 | 38,000 | 15,000
(25% × \$ 60,000) | 23,000 | |

2. Determine the amount of the loss from write-down of inventory that would be required

Lower-of-Cost-or-Market

| Product | Cost | Designated
Market Value | By Individual
Products | By
Category | By Total
Inventory |
|-----------------|-----------|----------------------------|---------------------------|----------------|-----------------------|
| 101 | \$ 80,000 | \$ 40,000 | \$ 40,000 | | |
| 102 | 50,000 | 0,000 | 160,000 | | |
| Total 101 + 102 | \$250,000 | \$ 0,000 | | \$250,000 | |
| 201 | \$160,000 | \$ 40,000 | 130,000 | | |
| 202 | 45,000 | 3,000 | 23,000 | | |
| Total 201 + 202 | \$205,000 | \$ 43,000 | | 153,000 | |
| Total | \$460,000 | \$ 43,000 | \$393,000 | \$403,000 | \$403,000 |

The LCM value for both the category application and the entire inventory application are identical because, in this particular case, market is below cost for both of the categories.

Amount of loss from write-down using individual items

$$\$460,000 - 393,000 = \$67,000$$

Amount of loss from write-down using categories or the entire inventory

$$\$460,000 - 403,000 = \$57,000$$

PART B INVENTORY ESTIMATION TECHNIQUES

The Southern Wholesale Company distributes approximately 100 products throughout the state of Mississippi. Southern uses a periodic inventory system and takes a physical count of inventory once a year at its fiscal year-end. A recent fire destroyed the entire inventory of one of Southern's warehouses. How can the company determine the dollar amount of its inventory destroyed when submitting an insurance claim to obtain reimbursement for the loss?

Home Improvement Stores, Inc. sells over 1,000 different products in customers' homes at its 17 retail stores. The company uses a periodic inventory system and takes a physical count of inventory once a year at its fiscal year-end. Home Improvement's bank has requested monthly financial statements as a condition attached to a recent loan. Can the company avoid the costly procedure of counting inventory at the end of each month to determine ending inventory and cost of goods sold?

These are just two examples of situations when it is either impossible or infeasible to determine the dollar amount of ending inventory by taking a count of the physical quantity of inventory on hand at the end of a period. Fortunately, companies can estimate inventory in these situations by either the gross profit method or the retail inventory method.

The Gross Profit Method

The gross profit method, also known as the gross margin method, is useful in situations where estimates of inventory are desirable. The technique is valuable in a variety of situations:

• LO2

1. In determining the cost of inventory that has been lost, destroyed, or stolen
2. In estimating inventory and cost of goods sold for interim reports, avoiding the expense of a physical inventory count.
3. To auditors: testing of the overall reasonableness of inventory amounts reported by clients
4. In budgeting and forecasting

However, the gross profit method provides only an approximation of inventory and is not acceptable according to generally accepted accounting principles for annual financial statements.

The gross profit method is not acceptable for the annual financial statements.

The technique relies on a relationship you learned in the previous chapter—ending inventory and cost of goods sold always equal the cost of goods available for sale. Even when ending inventory is unknown, we can estimate it because accounting records usually indicate the cost of goods available for sale (beginning inventory plus net purchases), and the cost of goods sold can be estimated from available information. So by subtracting the cost of goods sold from the cost of goods available for sale, we obtain an estimate of ending inventory. Let's compare that with the way inventory and cost of goods sold normally are determined. Usually in a periodic inventory system, ending inventory is known from a physical count and the cost of goods sold is determined as follows:

| | |
|--------------------------|-------------------------------|
| Beginning inventory | (from the accounting records) |
| Plus: Net purchases | (from the accounting records) |
| Goods available for sale | |
| Less: Ending inventory | (from a physical count) |
| Cost of goods sold | |

However, when using the gross profit method, the ending inventory is *not* known. Instead, the amount of sales is known—from which we can estimate the cost of goods sold—and the remainder is the amount taken as cost.

| | |
|--------------------------|-------------------------------|
| Beginning inventory | (from the accounting records) |
| Plus: Net purchases | (from the accounting records) |
| Goods available for sale | |
| Less: Cost of goods sold | (estimated) |
| Ending inventory | (estimated) |

So, a first step in estimating inventory is to estimate cost of goods sold. This estimate relies on the historical relationship among (a) net sales, (b) cost of goods sold, and (c) gross profit. Gross profit, you will recall, is simply net sales minus cost of goods sold. So, if we know what net sales are, and if we know what percentage of net sales the gross profit is, we can accurately estimate cost of goods sold. Companies often sell products that have a gross profit ratio.

As a result, accounting records usually provide the information necessary to estimate the cost of ending inventory, even when a physical count is impractical.

Let's use the gross profit method to solve the problem of Southern Wholesale Company introduced earlier in the chapter. Suppose the company began 2006 with inventory of \$600,000. On March 7 a warehouse fire destroyed the entire inventory. Company records indicate net sales of \$1,500,000 and net sales of \$2,000,000 prior to the fire. The gross profit ratio from the previous three years has been very close to 40%. Illustration 9-2 shows how we can estimate the cost of the inventory destroyed for this insurance claim.

A WORD OF CAUTION

The gross profit method provides only an estimate. The key to obtaining good estimates is the accuracy of the gross profit ratio. The ratio usually is estimated from relationships between current cost of goods sold. However, the current relationship may differ from the past. In

ILLUSTRATION 9-2 Gross Profit Method

| | |
|-------------------------------------|-------------|
| Beginning inventory (from records) | \$ 500,000 |
| Plus: Net purchases (from records) | 1,500,000 |
| Goods available for sale | 2,000,000 |
| Less: Net sales of goods sold | |
| Net sales | \$1,800,000 |
| Less: Estimated gross profit at 40% | (720,000) |
| Estimated cost of goods sold* | \$1,080,000 |
| Estimated ending inventory | \$ 920,000 |

*Alternatively, cost of goods sold can be calculated as $\$2,000,000 \times (1 - 40) = \$1,200,000$.

The key to obtaining good estimates is the reliability of the gross profit ratios.

In this case, all available information should be used to make necessary adjustments. For example, the company may have made changes in the markup percentage of some of its products. Very often different products have different markups. In these situations, a blanket ratio should not be applied across the board. The accuracy of the estimate can be improved by grouping inventory into pools of products that have similar gross profit relationships rather than using one gross profit ratio for the entire inventory.

The company's cost flow assumption should be implicitly considered when estimating the gross profit ratio. For example, if LIFO is used and the relationship between cost and selling price has changed for recent acquisitions, this would suggest a ratio different from one when the average cost method was used. Another difficulty with the gross profit method is that it does not explicitly consider possible theft or shrinkage of inventory. The method assumes that if the inventory was not sold, then it must be on hand at the end of the period. Suspected theft or shrinkage would require an adjustment to estimates obtained using the gross profit method.

ADDITIONAL CONSIDERATION

The gross profit ratio is, by definition, a percentage of sales. Sometimes, though, the gross profit is stated as a percentage of cost instead. In that case it is referred to as the markup on cost. For instance, a 60% markup on cost is equivalent to a gross profit ratio of 40%. Here's why:

A gross profit ratio of 40% can be formulated as

$$\frac{\text{Sales}}{100\%} - \frac{\text{Cost}}{60\%} = \frac{\text{Gross profit}}{40\%}$$

Now, expressing gross profit as a percentage of cost we get

$$\frac{\text{Gross profit}}{40\%} \times \frac{\text{Cost}}{60\%} = \frac{\text{Gross profit as a \% of cost}}{60\%}$$

Conversely, gross profit as a percentage of cost can be converted to gross profit as a percentage of sales. The gross profit ratio is as follows:

$$\begin{aligned} \text{Gross profit as a \% of sales} &= \frac{\text{Gross profit as a \% of cost}}{1 + \text{Gross profit as a \% of cost}} \\ &= \frac{60\%}{1 + 60\%} = 40\% \end{aligned}$$

Be careful to note which way the percentage is being stated. If stated as a markup on cost, it can be converted to the gross profit ratio, and the gross profit method can be applied the usual way.

The Retail Inventory Method



LO3

The retail inventory method is similar to the gross profit method in that it relies on the relationship between cost and selling price to estimate ending inventory and cost of goods sold.

the same applies, the method is used by many retail enterprises such as **Dyson**, **Hudson**, **Walmart**, **Wells**, **Footlock**, **Saks**, **J.C. Penney**, and **Macy's**.² Department stores, certain retail furniture dealers and jewelry stores whose inventory consists of few high-priced items, also occasionally use the specific identification inventory method. However, high-volume retail selling, particularly in items of low unit prices, is the ideal inventory method in which to begin with the advent of bar coding on more and more retail merchandise. Use of the method, even though it might be grossly profit reducing, is impractical for retail stores because of the physical count of inventory and required physical ending inventory and cost of goods sold.

The retail method tends to provide a more accurate estimate than the gross profit method because it is based on the current cost-retail percentage rather than on a historical gross profit ratio.

The cost-retail ratio, or the estimate of the cost percentage, is achieved by comparing the goods available for sale with goods available for sale at *current selling prices*. So, to estimate the retail inventory method, we require a comparison of quantities measured at retail prices and quantities measured at cost. But also at current selling price. We refer to this as *cost-retail percentage*. In its simplest form, the retail inventory method estimates the amount of ending inventory (at retail) by subtracting sales (at retail) from goods available for sale (at retail). This estimated ending inventory (at retail) then is converted to cost by multiplying it by the cost-to-retail percentage. This is achieved by dividing goods available for sale at cost by goods available for sale at retail.

To use the retail inventory method to solve the problem of the Home Improvement introduced earlier in the chapter, suppose the company's bank has asked for monthly financial statements as a condition attached to a loan dated May 31, 2006. To avoid a physical count of inventory, the company intends to use the retail inventory method to estimate ending inventory and cost of goods sold for the month of June. Using data available in its accounting records, Illustration 9-3 shows how Home Improvement can estimate ending inventory and cost of goods sold for June.

| | Cost | Retail |
|--|-------------------------------|------------|
| Beginning inventory | \$ 60,000 | \$ 90,000 |
| Net purchases | 287,200 | 460,000 |
| Goods available for sale | \$347,200 | \$550,000 |
| Cost-retail percentage | $\frac{\$347,200}{\$550,000}$ | <u>62%</u> |
| Cost Net sales | | (400,000) |
| Estimated ending inventory at retail | | \$ 150,000 |
| Estimated ending inventory at cost (62% \times \$150,000) | \$93,000 | |
| Estimated cost of goods sold—goods available for sale at cost minus ending inventory at cost equals cost of goods sold | <u>\$254,000</u> | |

ILLUSTRATION 9-3
Retail Method

Goods available for sale (at retail) minus net sales equals estimated ending inventory (at retail).

While the gross profit of the home retail inventory method is acceptable for external financial reporting if the results of applying the method are sufficiently close to what would have been achieved using a more rigorous determination of the cost of ending inventory and cost of goods sold, it is not allowed by the Internal Revenue Service as a method that can be used to determine cost of goods sold for income tax purposes.³ Another advantage of the method is that different cost flow methods can be explicitly incorporated into the estimation technique. In other words, we can modify the application of the method to use first-in, first-out ending inventory and cost of goods sold or approximate average cost, lower-of-average-cost-or-market (conventional) and LIFO. (The FIFO retail method is possible but used less frequently in practice.) In subsequent chapters we discuss these variations later in the chapter.

The retail inventory method is the standard method for estimating ending inventory and cost of goods sold.

² It is not surprising that certain reporting and tax requirements have been imposed on companies that use the gross profit method for external reporting. Internal retail price method rather than the retail inventory method.

Like the gross profit method, the retail inventory method also can be used to estimate the cost of inventory lost, stolen, or destroyed; for testing the overall reasonableness of physical counts; in budgeting and forecasting as well as in generating information for interim financial statements. Even though the retail method provides fairly accurate estimates, a physical count of inventory usually is performed at least once a year to verify accuracy and detect spoilage, theft, and other irregularities.

RETAIL TERMINOLOGY

Our example above is simplified in that we implicitly assumed that the selling prices of beginning inventory and of merchandise purchased did not change from date of acquisition to the end of the period. This frequently is an unrealistic assumption. The terms in Graphic 9-3 are associated with changing retail prices of merchandise inventory.

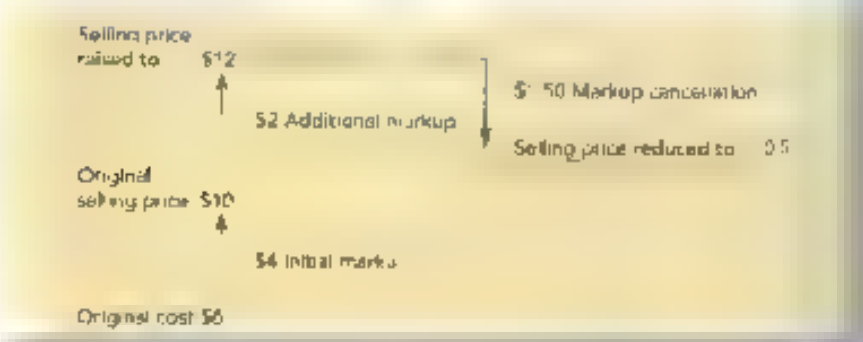
Changes in the selling prices must be included in the determination of ending inventory by retail.

GRAPHIC 9-3
Terminology Used in Applying the Retail Method

| | | |
|------------------------------|--|--|
| Initial markup | Original difference between original selling price and original cost | original markup from cost to selling price |
| Additional markup | increase in selling price above original selling price | selling price increase above original markup |
| Markup cancellation | decrease in selling price below original selling price | decrease below original markup |
| Markdown | reduction in selling price below original selling price | selling price below the original selling price |
| Markdown cancellation | increase in selling price above original selling price | increase above original selling price |

To illustrate, assume that a product purchased for \$6 is initially marked up \$4, from \$6 to \$10, the original selling price. If the selling price is subsequently increased to \$12, the additional markup is \$2. If the selling price is then subsequently decreased to \$9.50, the markup cancellation is \$1.50. We refer to the net effect of the changes ($\$2.00 - \$1.50 = \$0.50$) as the net markup. Graphic 9-4A depicts these events.

GRAPHIC 9-4A
Retail Inventory Method Terminology



Now let's say the selling price of the product purchased for \$6 and initially marked up \$4, is reduced to \$7. The markdown is \$3. If the selling price is later increased to \$8, the markdown cancellation is \$1. The net effect of the change ($\$3 - \$1 = \$2$) is the net markdown. Graphic 9-4B depicts this possibility.

GRAPHIC 9-4B
Retail Inventory Method Terminology

| | | | | |
|------------------------|------|--------------|------------------------------|---------------------------|
| Original selling price | \$10 | | | Selling price increase |
| | ↓ | \$3 Markdown | | |
| \$4 Initial markup | | | selling price reduced to \$7 | \$3 Markdown cancellation |
| Original cost | \$6 | | | |

When applying the retail inventory method, net markups, net markdowns must be included in the determination of ending inventory at retail.⁵ Now cost has our illustration the retail inventory method but cannot fail to incorporate markups and markdowns as well as an approach could be in each of the alternative inventory

Net markups and net markdowns must be included in the retail column of the ending inventory at retail.

COST FLOW METHODS

We continue the Home Improvement Stores example discussed with Illustration 9-4 and use the retail inventory method to estimate ending inventory and cost of goods sold. We will use the same illustration to see how the retail method can be modified to approximate lower of cost or market.

Home Improvement Stores Inc. keeps a periodic inventory system and the retail inventory method to estimate ending inventory and cost of goods sold. The following data are available from the company's records for the month of July 2016:

| | Cost | Retail |
|---------------------|-----------|----------------------|
| Beginning inventory | \$ 99,200 | \$160,000 |
| Net purchases | 305,280 | 470,000 ^a |
| Net markups | | 10,000 |
| Net markdowns | | 8,000 |
| Net sales | | 434,000 |

^a Includes freight in.
^b Includes purchased goods less returns of retail.
^c Includes sales.

ILLUSTRATION 9-4
The Retail Inventory Method—Various Cost Flow Methods

Approximating Average Cost. Recall that the average cost method assumes that cost is evenly sold and ending inventory each consist of a mixture of all the goods available for sale. So when we use the retail method to approximate average cost, the cost-to-retail percentage should be based on the weighted averages of the costs and retail amounts for goods available for sale. This is achieved by calculating the cost-to-retail percentage by dividing the total cost of goods available for sale by total goods available for sale at retail. This average percentage is applied to ending inventory at retail, we get an estimate of ending inventory at average cost. If you look back to our simplified example for the month of June, you'll notice that we used this approach there. So, our ending inventory and cost of goods sold estimates for June were estimates of average cost.⁶

Now we use the retail inventory method to approximate average costs for July. Notice in Illustration 9-3 that both markups and markdowns are included in the determination of goods available for sale at retail.

To approximate average cost, the cost-to-retail percentage is determined for all goods available for sale.

Approximating Average LCM—The Conventional Retail Method. Recall from our discussion earlier in the chapter that, however costs are determined, inventory should be valued in the balance sheet at LCM. Fortunately, we can apply the retail inventory method in a way that LCM is approximated. This method often is referred to as the conventional retail method. We apply the method by excluding markdowns from the calculation of the cost-to-retail percentage. Markdowns still are subtracted in the retail column but only the net percentage is calculated. To approximate lower of average cost or market, the retail method is modified as shown in Illustration 9-6.

Notice that by not subtracting net markdowns from the denominator, the cost-to-retail percentage is lower than it was previously (63.2% versus 64%). This always will be the case when markdowns exist. As a result, the cost approximation of ending inventory always will be lower when markdowns exist. To understand why this lower amount approximates LCM, we need to realize that markdowns usually occur when obsolescence, spoilage, overstock, price declines, or competition has lessened the utility of the merchandise. To recognize

LO4

To approximate LCM, the cost-to-retail percentage is calculated on the cost-to-retail percentage.

⁵ Even if both net markups and net markdowns are zero.

ILLUSTRATION 9-5

Retail Method—
Average Cost

| | Cost | Retail |
|--|------------------|------------|
| Beginning inventory | \$ 99,200 | \$ 60,000 |
| Plus: Net purchases | 305,280 | 470,000 |
| Net markups | | 10,000 |
| Less: Net markdowns | | (8,000) |
| Goods available for sale | 404,480 | 632,000 |
| Cost-to-retail percentage $\frac{\$404,480}{\$632,000} = 64\%$ | | |
| Less: Net sales | | (434,000) |
| Estimated ending inventory at retail | | \$ 198,000 |
| Estimated ending inventory at cost (64% \times \$198,000) | 126,720 | |
| Estimated cost of goods sold | <u>\$277,760</u> | |

ILLUSTRATION 9-6

Retail Method—
Average Cost, LCM

| | Cost | Retail |
|--|------------------|------------|
| Beginning inventory | \$ 99,200 | \$ 60,000 |
| Plus: Net purchases | 305,280 | 470,000 |
| Net markups | | 10,000 |
| | | 640,000 |
| Cost-to-retail percentage $\frac{\$404,480}{\$640,000} = 63.2\%$ | | |
| Less: Net markdowns | | (8,000) |
| Goods available for sale | 404,480 | 632,000 |
| Less: Net sales | | (434,000) |
| Estimated ending inventory at retail | | \$ 198,000 |
| Estimated ending inventory at cost (63.2% \times \$198,000) | (125,136) | |
| Estimated cost of goods sold | <u>\$279,344</u> | |

The logic for using this approach is that if a marked-down item is sold at a price less than its original retail price, the item is not in the ending inventory.

this decline in utility in the period it occurs. In LCM data, we exclude net markdowns in the calculation of the cost-to-retail (market) percentage. It should be emphasized that this approach provides only an *approximation* of what ending inventory might be as opposed to applying the LCM rule in the more exact way described earlier in the chapter.

Also notice that the ending inventory at retail is the same using both approaches (\$198,000). This will be the case regardless of the cost flow method used because in all approaches this amount reflects the ending inventory at current retail prices.

The LCM variation is not generally used in combination with LIFO. This does not mean that a company using LIFO ignores the LCM rule. Any obsolete or slow-moving inventory that has not been marked down by year-end can be written down to market after the valuation of inventory using the retail method. This is usually not a significant problem. If prices are rising, LIFO ending inventory includes old lower priced items whose costs are likely to be lower than current market. The LCM variation could be applied to the FIFO method.

The LIFO Retail Method. The last-in, first-out (LIFO) method assumes that prices are those most recently acquired. When there is a net increase in inventory quantity during a period, the use of LIFO results in ending inventory that includes the beginning inventory as well as one or more additional layers added during the period. When there is a net decrease in inventory quantity, LIFO layer(s) are liquidated. In applying LIFO to the retail method is the

other way, we assume that the retail prices of goods remained stable during the period. This assumption, which is relaxed later in the chapter, allows us to look at the beginning and ending inventory in dollars to determine if inventory quantity has increased or decreased.

We'll use the numbers from our previous example to illustrate using the retail method to compute LIFO so we can compare the results with those of the conventional retail method. Recall that beginning inventory at retail is \$160,000 and ending inventory at retail is \$198,000. We assume again that net purchases and net markups have increased during the year. Thus, net sales ending inventory include the beginning inventory layer of \$160,000 plus 200 units as well as some additional merchandise purchased during the period. To calculate total ending inventory at LIFO cost, we also need to determine the inventory layer added during the period. When using the LIFO retail method, we assume no more than one inventory layer is added per year if inventory increases.² Each layer will carry its own cost-to-retail percentage.

Illustration 9-7 shows how Home Improvement Stores would estimate total ending inventory and cost of goods sold for the period using the LIFO retail method. The beginning inventory layer carries a cost-to-retail percentage of $\frac{\$99,200}{\$160,000} = 61.9\%$. The layer inventory added during the period is \$380,000 at retail, which is determined by subtracting beginning inventory at retail from ending inventory at retail (\$198,000 - \$160,000). This net will be converted to cost by multiplying it by its own cost-to-retail percentage reflecting the current period's ratio of cost to retail amounts; in this case 64.68%.

If inventory at retail increases as during the year, a new layer is added.

| | Cost | Retail |
|--|-------------------------------|-----------|
| Beginning inventory | \$ 99,200 | \$160,000 |
| Plus: Net purchases | 305,280 | 470,000 |
| Net markups | | 10,000 |
| Less: Net markdowns | | (8,000) |
| Goods available for sale (excluding beginning inventory) | 305,280 | 472,000 |
| Goods available for sale (including beginning inventory) | 404,480 | 632,000 |
| Beginning inventory cost-to-retail percentage: | $\frac{\$99,200}{\$160,000}$ | |
| | 61.9% | |
| Net cost-to-retail percentage | $\frac{\$305,280}{\$472,000}$ | |
| | 64.68% | = |
| Less: Net sales | | (434,000) |
| Estimated ending inventory at retail | | \$198,000 |
| Estimated ending inventory at cost: | | |
| | Retail | Cost |
| Beginning inventory | \$160,000 × 61.9% | \$ 99,040 |
| Current period's layer | 38,000 × 64.68% | 24,578 |
| Total | \$198,000 | \$123,618 |
| Estimated cost of goods sold | | \$280,702 |

ILLUSTRATION 9-7
LIFO Retail Method

Beginning inventory is included from the calculation of the net cost-to-retail percentage.

Each layer has its own cost-to-retail percentage.

In this period's (August's) beginning inventory will include the two distinct layers (July and July), each of which carries its own unique cost-to-retail percentage. Notice in the margin that both net markups and net markdowns are included in the calculation of the current period's cost-to-retail percentage.

² If multiple layers of different costs are added throughout the year. When using the regular LIFO method, either the first or latest layer added is used to value all inventory.

OTHER ISSUES PERTAINING TO THE RETAIL METHOD

To focus on the key elements of the retail method, we so far ignored some of the issues in the retail process. Fundamental elements such as returns and allowances, discounts, freight, spoilage, and shortages can complicate the retail method.

Retailer net purchases is found by taking freight, returns, and allowances from the gross purchase price. When these adjustments are made to the gross purchase price, the net purchases are determined. Net purchases are then added to the cost of goods available for sale to determine the cost of goods sold. Net purchases are also used to determine the cost of goods sold. Net purchases are also used to determine the cost of goods sold.

It is important to note that the net purchases are not subtracted from the cost of goods available for sale. This is because the net purchases are not subtracted from the cost of goods available for sale. This is because the net purchases are not subtracted from the cost of goods available for sale.

For example, suppose an item of merchandise purchased for \$6 is initially marked to \$10. Original selling price is therefore \$10. When the item is sold, we deduct sales from the retail column. But if the item is sold to an employee for \$7 (a \$3 employee discount) and recorded as a \$7 sale, the \$3 employee discount must be added back to the full \$10 is deducted from goods available at retail to arrive at ending inventory at retail.

We also need to consider spoilage, breakage, and theft. So far we've assumed that by subtracting goods sold from goods available for sale, we find ending inventory. It's obvious, though, that some of the goods available for sale were lost to such shortages and therefore do not remain in ending inventory.

To take these shortages into account when using the retail method, we deduct the value of inventory lost due to spoilage, breakage, or theft in the retail column. These losses are expected for most retail ventures so they are referred to as *normal shortages* (spoilage, breakage, etc.), and are deducted in the retail column after the calculation of the retail percentage. Because these losses are anticipated, they are included implicitly in the determination of selling prices. Including normal spoilage in the calculation of the retail percentage would distort the normal relationship between cost and retail. *Abnormal shortages* would be deducted in both the cost and retail columns before the calculation of the cost-to-retail percentage. These losses are not anticipated and are not included in the determination of selling prices.

We recap the treatment of special elements in the application of the retail method in Graphic 9-5 and illustrate the use of some of them in the concept review exercise that follows.

GRAPHIC 9-5 Recap of Other Retail Method Elements

| Element | Treatment |
|--|--|
| Before calculating the cost-to-retail percentage | |
| Freight-in | Added in the cost column |
| Purchase returns | Subtracted from the cost and retail columns |
| Purchase discounts (when the gross method is used to record purchases) | Deducted in the cost column |
| Abnormal shortages (spoilage, breakage, etc.) | Deducted in both the cost and retail columns |
| After calculating the cost-to-retail percentage | |
| Normal shortages (spoilage, breakage, etc.) | Deducted from the retail column |
| Employee discounts (when recorded net of discounts) | Added to net sales |

CONCEPT REVIEW EXERCISE

The Henderson Company uses the retail inventory method to estimate ending inventory and cost of goods sold. The following data for 2006 are available in Henderson's accounting records:

RETAIL INVENTORY METHOD

| | Cost | Retail |
|---------------------|----------|----------|
| Beginning inventory | \$ 8,000 | \$12,000 |
| Purchases | 68,000 | 98,000 |
| Freight-in | 3,200 | |
| Purchase returns | 3,000 | 4,200 |
| Net markups | | 6,000 |
| Net markdowns | | 2,400 |
| Normal spoilage | | 1,800 |
| Net sales | | 92,000 |

The company records sales net of employee discounts. These discounts for 2006 totaled \$2,300.

Required:

1. Estimate Henderson's ending inventory and cost of goods sold for the year using the average cost method.

2. Estimate Henderson's ending inventory and cost of goods sold for the year using the conventional retail method (LCM, average cost).

3. Estimate Henderson's ending inventory and cost of goods sold for the year using the LIFO retail method.

4. Estimate Henderson's ending inventory and cost of goods sold for the year using the average cost method.

SOLUTION

| | Cost | Retail |
|--|-----------------|------------------|
| Beginning inventory | \$ 8,000 | \$ 12,000 |
| Plus: Purchases | 68,000 | 98,000 |
| Freight-in | 3,200 | |
| Less: Purchase returns | (3,000) | (4,200) |
| Plus: Net markups | | 6,000 |
| Less: Net markdowns | | (2,400) |
| Goods available for sale | \$76,200 | \$ 109,400 |
| Cost-to-retail percentage $\frac{\$76,200}{\$109,400} = 69.65\%$ | | |
| Less: Normal spoilage | | (1,800) |
| Net sales | \$92,000 | |
| Add back employee discounts | 2,300 | (94,300) |
| Estimated ending inventory at retail | | <u>\$ 13,300</u> |
| Estimated ending inventory at cost $(69.65\% \times \$13,300)$ | <u>(9,263)</u> | |
| Estimated cost of goods sold | <u>\$66,937</u> | |

5. Estimate Henderson's ending inventory and cost of goods sold for the year using the conventional retail method (LCM, average cost).

| | Cost | Retail |
|--|--------------------------------------|------------------|
| Beginning inventory | \$ 8,000 | \$ 12,000 |
| Plus: Purchases | 68,000 | 96,000 |
| Freight-in | 3,200 | |
| Less: Purchase returns | (3,000) | (4,200) |
| Plus: net markups | | 5,000 |
| | | <u>114,800</u> |
| Cost-to-retail percentage | $\frac{576,200}{\$ 1,800} = 66.16\%$ | |
| Less: Net markdowns | | <u>2,400</u> |
| Goods available for sale | 76,200 | 109,400 |
| Less: Normal spoilage | | <u>10,000</u> |
| Sales | | |
| Net sales | \$92,000 | |
| Add back employee discounts | 2,300 | |
| Estimated ending inventory at retail | | <u>\$ 13,300</u> |
| Estimated ending inventory at cost $66.16\% \times \$13,300$ | (9,065) | |
| Estimated cost of goods sold | <u>\$67,135</u> | |

7 Estimate Henderson's ending inventory and cost of goods sold for the year using the LIFO retail method.

| | Cost | Retail |
|--|-------------------------------------|------------------|
| Beginning inventory | \$ 8,000 | \$ 12,000 |
| Plus: Purchases | 68,000 | 96,000 |
| Freight-in | 3,200 | |
| Less: Purchase returns | (3,000) | (4,200) |
| Plus: Net markups | | 2,700 |
| Less: Net markdowns | | <u>2,400</u> |
| Goods available for sale (excluding beginning inventory) | 66,200 | 91,400 |
| Goods available for sale (including beginning inventory) | 76,200 | 109,400 |
| Cost-to-retail percentage | $\frac{66,200}{\$91,400} = 72.32\%$ | |
| Less: Normal spoilage | | <u>(1,000)</u> |
| Sales | | |
| Net sales | \$92,000 | |
| Add back employee discounts | 2,300 | |
| Estimated ending inventory at retail | | <u>\$ 13,300</u> |
| Estimated ending inventory at cost | | |

| | Retail | Cost |
|------------------------------|-----------------------------|-----------------|
| Beginning inventory | $\$12,000 \times 66.67\% =$ | <u>\$8,000</u> |
| Current period's layer | $1,300 \times 70.02\% =$ | <u>910</u> |
| Total | <u>\$13,300</u> | <u>\$8,910</u> |
| Estimated cost of goods sold | | <u>\$67,290</u> |

100,000 - 8,910 = 91,090

DOLLAR-VALUE LIFO RETAIL

In our earlier illustration of the LIFO retail method, we assumed that the retail prices of the inventory remained stable during the period. If you recall, we compared the ending inventory at retail with the beginning inventory (at retail) to see if inventory had increased. If the dollar amount of ending inventory exceeded the beginning amount, we assumed a new LIFO layer had been added. But this isn't necessarily true. It may be that the dollar amount of ending inventory exceeded the beginning amount simply because prices increased, without an actual increase in the quantity of goods. So, to see if there's been a "real" increase in quantity, we need a way to eliminate the effect of any price changes before we compare the ending inventory with the beginning inventory. Fortunately, we can accomplish this by combining two methods we've already discussed—the LIFO retail method (Part B of this chapter) and dollar-value LIFO (previous chapter). The combination is called the dollar-value LIFO retail method.

To illustrate, we return to the Home Improvement Stores situation (Illustration 9-7) in which we applied LIFO retail. We keep the same inventory data, but change the assumption from the month of July to the fiscal year 2006. This allows us to build upon Illustration 9-7A. A significant change in retail prices over the year of 10% (an increase in the retail price index from 1 to 1.1). We follow the LIFO retail procedure up to the point of comparing the ending inventory with the beginning inventory. However, because prices have risen, the apparent increase in inventory is only partly due to an additional layer of inventory and partly due to the increase in retail prices. The retail increase is found by deflating the ending inventory amount to beginning of the year prices before comparing beginning and ending amounts. We did this with the dollar-value LIFO technique discussed in the previous chapter.¹⁴

| | Cost | Retail |
|--|-------------------------------|------------------|
| Beginning inventory | \$ 99,200 | \$160,000 |
| Plus: Net purchases | 305,280 | 470,000 |
| Net markups | | 10,000 |
| Plus: Net markdowns | | (8,000) |
| Goods available for sale (excluding beginning inventory) | 305,280 | 472,000 |
| Goods available for sale (including beginning inventory) | 404,480 | 632,000 |
| Beginning cost-to-retail percentage | $\frac{\$99,200}{\$160,000}$ | 62% |
| Ending cost-to-retail percentage | $\frac{\$305,280}{\$472,000}$ | 64.68% |
| Less: Net sales | | (414,000) |
| Ending inventory at current year retail prices | | <u>\$ 98,000</u> |
| Estimated ending inventory at cost (calculated below) | (\$ 113,430) | |
| Estimated cost of goods sold | \$291,050 | |

| | Step 1
Ending Inventory
at Base Year
Retail Prices | Step 2
Inventory Layers
at Base Year
Retail Prices | Step 2
Inventory Layers
Converted
to Cost |
|---|---|---|--|
| Ending inventory
at Year-End
Retail Prices | \$98,000 | | |
| Less: Inventory
at beginning of year | \$160,000 | | |
| | | | |
| | | 160,000 (base) \times 62% = \$ 99,200 | |
| | | 38,000 (2006) \times 64.68% = 24,630 | |
| Ending inventory at dollar-value LIFO retail cost | | | <u>\$ 113,430</u> |

¹⁴ The ending inventory at dollar-value LIFO retail cost is calculated as follows: Ending inventory at dollar-value LIFO retail cost = Ending inventory at current year retail prices - (Ending inventory at current year retail prices - Ending inventory at base year retail prices) \times Ending cost-to-retail percentage.

PART C

• LOS

FINANCIAL
REPORTING CASE

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Using the dollar-value LIFO retail method, calculate the ending inventory at cost for the Home Improvement Stores situation.

ILLUSTRATION 9-7A
The Dollar-Value LIFO
Retail Method

Using the dollar-value LIFO retail method, calculate the ending inventory at cost for the Home Improvement Stores situation.

Each layer year-end cost is
 $\$200,000 \times 1.00 = \$200,000$
 $\times 1.00 = 200,000$
 plus the layer

In this illustration, a \$20,000 year 2006 layer is added to the base layer. Two adjustments are needed to convert this amount to LIFO cost. Multiplying by the 2006 price index, 1.10, converts it from its base year retail to 2006 retail. Multiplying by the 2006 cost-to-retail percentage, 64.6%, converts it from its 2006 retail to 2006 cost. The two steps are combined in our illustration. The base year inventory also is converted in cost. The two layers are added to derive ending inventory at dollar-value LIFO retail cost.

When additional layers are added in subsequent years, their LIFO amounts are determined the same way. For illustration, let's assume ending inventory in 2007 is \$226,200 at current retail prices and the price level has risen to 1.16. Also assume that the cost-to-retail percentage for 2007 net purchases is 63%. In Illustration 9-7B, the ending inventory is converted to base year retail (step 1). This amount is apportioned into layers, each at base year retail (step 2). Layers then are converted to layer year costs (step 3).

ILLUSTRATION 9-7B

The Dollar Value LIFO Retail Inventory Method

Ending inventory at year-end retail prices is assumed to be \$226,200. The price level has risen to 1.16. The cost-to-retail percentage for 2007 net purchases is 63%.

| Ending Inventory at Year-End Retail Prices | Step 1
Ending Inventory at Base Year Retail Prices | Step 2
Inventory Layers at Base Year Retail Prices | Step 3
Inventory Layers Converted to LIFO Cost |
|---|---|---|---|
| \$226,200 (assumed) | \$195,000 | \$195,000 | |
| | | 160,000 (base) $\times 1.00 \times .62 =$ | \$ 99,200 |
| | | 20,000 (2006) $\times 1.10 \times .6468 =$ | 14,232 |
| | | \$ 15,000 (2007) $\times 1.16 \times .63 =$ | 10,864 |
| | | | <u>\$ 24,392</u> |
| Total ending inventory at dollar-value LIFO retail cost | | | \$ 24,392 |

Now, let's assume that ending inventory in 2007 is \$204,160 at current retail prices (instead of \$226,200) and the price level has risen to 1.16. Also assume that the cost-to-retail percentage for 2007 net purchases is 63%. Step 1 converts the ending inventory to its base year price of \$176,000 (\$204,160 \div 1.16). A comparison to the beginning inventory at base year prices of \$180,000 (\$160,000 base year layer $+$ \$20,000 2006 layer) indicates that inventory decreased during 2007. In this case, no 2007 layer is added and 2007 ending inventory at dollar-value LIFO retail of \$176,000 is determined in Illustration 9-7C.

ILLUSTRATION 9-7C

The Dollar Value LIFO Retail Inventory Method

Ending inventory at year-end retail prices is assumed to be \$204,160. The price level has risen to 1.16. The cost-to-retail percentage for 2007 net purchases is 63%.

| Ending Inventory at Year-End Retail Prices | Step 1
Ending Inventory at Base Year Retail Prices | Step 2
Inventory Layers at Base Year Retail Prices | Step 3
Inventory Layers Converted to LIFO Cost |
|---|---|---|---|
| \$204,160 (assumed) | \$176,000 | \$176,000 | |
| | | 160,000 (base) $\times 1.00 \times .62 =$ | \$ 99,200 |
| | | 16,000 (2006) $\times 1.10 \times .6468 =$ | 11,364 |
| Total ending inventory at dollar-value LIFO retail cost | | | <u>\$ 110,564</u> |

A portion of the 2006 inventory layer has been liquidated—reduced from \$20,000 to \$16,000 at base year prices—to reduce total inventory at base year prices to \$176,000.

As we mentioned earlier in this section, many high-volume retailers selling many different items use the retail method. J.C. Penney Company, Inc., for example, uses the dollar-value LIFO variation of the retail method. Graphic 9-6 shows the inventory disclosure included in the company's recent financial statements.

Notice that J.C. Penney uses an internal index to adjust for changing prices and that the lower-of-cost-or-market rule is determined on an aggregate basis for similar types of merchandise.

Summary of Significant Accounting Policies (in part) Merchandise Inventories

Inventories are valued at the lower of cost or market. Cost is determined by the first-in, first-out (FIFO) method. Market is determined by the lower of replacement cost, net realizable value, or ceiling. Inventory and cost of goods sold are determined by the FIFO method. The inventory is valued at the lower of cost or market. The cost of goods sold is determined by the FIFO method. The inventory is valued at the lower of cost or market. The cost of goods sold is determined by the FIFO method.

GRAPHIC 9-8

Disclosure of Inventory Method: J.C. Penney Company, Inc.

CONCEPT REVIEW EXERCISE

Problem The Nicholson Department Store adopted the dollar value LIFO retail inventory method. Inventory transactions at both cost and retail prices and cost indexes for 2006 and 2007 are as follows:

DOLLAR-VALUE LIFO RETAIL METHOD

| | 2006 | | 2007 | |
|---------------------|----------|----------|--------|--------|
| | Cost | Retail | Cost | Retail |
| Beginning inventory | \$16,000 | \$24,000 | | |
| Net purchases | 42,000 | 58,500 | 45,000 | 58,700 |
| Net markups | | 3,000 | | 2,400 |
| Net markdowns | | 1,500 | | 1,100 |
| Net sales | | 56,000 | | 57,300 |
| Price index | | | | |
| January 1, 2006 | | 1.00 | | |
| December 31, 2006 | | 1.08 | | |
| December 31, 2007 | | 1.15 | | |

Required:

1. Compute the 2006 and 2007 ending inventory and cost of goods sold using the dollar value LIFO retail inventory method.

| | 2006 | | 2007 | |
|---|------------------------------|----------|-----------|----------|
| | Cost | Retail | Cost | Retail |
| Beginning inventory | \$ 16,000 | \$24,000 | \$ 16,456 | \$28,000 |
| Net purchases | 42,000 | 58,500 | 45,000 | 58,700 |
| Net markups | | 3,000 | | 2,400 |
| Net markdowns | | 1,500 | | 1,100 |
| Goods available for sale (excluding beg. inv.) | 42,000 | 60,000 | 45,000 | 60,000 |
| Goods available for sale (including beg. inv.) | 58,000 | 84,000 | 62,456 | 88,000 |
| Cost layer | | | | |
| Cost-to-retail percentage | $\frac{\$ 16,000}{\$24,000}$ | 66.67% | | |
| Cost layer | | | | |
| Cost-to-retail percentage | $\frac{\$42,000}{\$60,000}$ | 70% | | |
| Cost layer | | | | |
| Cost-to-retail percentage | $\frac{\$45,000}{\$60,000}$ | 75% | | |
| Net sales | | 56,000 | | 57,300 |
| Estimated ending inv. at current year retail prices | | 28,000 | | 30,700 |
| Estimated ending inventory at cost (below LIFO) | | | | 18,345 |
| Estimated cost of goods sold | \$40,544 | | \$44,111 | |

2006

| Ending Inventory
at Year-End
Retail Prices | Step 1
Ending Inventory
at Base Year
Retail Prices | Step 2
Inventory Layers
at Base Year
Retail Prices | Step 3
Inventory Layers
Converted
to Cost |
|---|---|---|--|
| \$28,000
(above) | $\frac{\$28,000}{1.08} = \$25,926$ | $\$24,000 \text{ (base)} \times 1.00 \times 66.67\% =$
$1.926 \text{ (2006)} \times 1.08 \times 70.00\%$ | $\$16,000$

456 |
| Total ending inventory at dollar-value LIFO retail cost | | | <u>\$ 17,456</u> |

2007

| Ending Inventory
at Year-End
Retail Prices | Step 1
Ending Inventory
at Base Year
Retail Prices | Step 2
Inventory Layers
at Base Year
Retail Prices | Step 3
Inventory Layers
Converted
to Cost |
|---|---|--|--|
| \$31,000
(above) | $\frac{\$31,000}{1.15} = \$26,957$ | $\$24,000 \text{ (base)} \times 1.00 \times 66.67\%$
$1.926 \text{ (2006)} \times 1.08 \times 70.00\%$
$637 \text{ (2007)} \times 1.15 \times 75.00\% =$ | $\$16,000$

456

389 |
| Total ending inventory at dollar-value LIFO retail cost | | | <u>\$11,343</u> |

PART D

CHANGE IN INVENTORY METHOD
AND INVENTORY ERRORS

Change in Inventory Method

- LO4 Accounting principles should be applied consistently from period to period to allow for the possibility of operating results. However, changes within a company as well as changes in an external economic environment may require a company to change its accounting method. As we mentioned in Chapter 8, high inflation in the 1970s motivated many companies to switch to the LIFO inventory method.

Specific accounting treatment and disclosures are prescribed for companies that change accounting principles. Chapter 4 introduced the subject of accounting changes and Chapter 20 provides in-depth coverage of the topic. Here we provide an overview of how changes in inventory methods are reported.

MOST INVENTORY CHANGES

Recall from our discussion in Chapter 4 that most voluntary changes in accounting principles are reported retrospectively. This means reporting all previous periods' financial statements as if the new method had been used in all prior periods. Changes in inventory methods, other than a change to LIFO, are treated this way. We discuss the *LIFO* exception in the next section. In Chapter 4 we mentioned the steps a company undertakes to account for a change in inventory method. We demonstrate those steps using a real-world example (Illustrations 9-8 and 9-8A).

The first step is to revise prior years' financial statements. That is, for each year appearing in the comparative statements, McKesson makes three statements appear as if the newly adopted accounting method (100% FIFO) had been applied all along. In its balance sheet, McKesson would report 2004 inventory by its newly adopted method, 100% FIFO, and as it would revise the amounts it reported last year for its 2003 inventory. In its income statements, cost of goods sold also would reflect the new method as both 2004 and 2003 (as shown in Illustration 9-8A).

In its statements of shareholders' equity, McKesson would report retained earnings each year as if it had used FIFO all along, and for the earliest year reported, it would revise beginning

Changes in inventory methods, other than a change to LIFO, are accounted for retrospectively.

Step 1: Revise
• Retained Earnings
• Assets

[illegible]

products and services in the statements. The company has net assets of \$1.2 billion, \$547.5 million and \$511.3 million in 2000, 2001 and 2002, respectively. The company has 200,000 employees.

ILLUSTRATION 9-8
Change in Inventory Method

McKESSON CORPORATION
Partial Income Statement:
For the Years Ended March 31

| | in millions | |
|--------------------|-------------|----------|
| | 2004 | 2003 |
| Sales revenue | \$69,736 | \$57,127 |
| Cost of goods sold | 66,258 | 54,019 |
| Gross profit | 3,478 | 3,103 |
| Operating expenses | 2,015 | 2,170 |
| Operating income | \$ 1,463 | \$ 933 |

Let's suppose that in 2004 Nike's ending inventory is valued using the FIFO method.

McKESSON CORPORATION
Partial Income Statements
For the Years Ended March 31

| | 2004 | 2003 |
|--------------------|----------|----------|
| Sales revenue | \$69,506 | \$57,121 |
| Cost of goods sold | 66,429 | - |
| Gross profit | 3,277 | 3,490 |
| Operating expenses | 2,265 | 271 |
| Operating income | \$ 1,012 | \$ 3,219 |

2004 (1st) = increase of \$222 million + \$29 million increase in a 100% FIFO basis. Here's what McKesson's note reported that beginning inventory is \$218 million higher (\$6,241,021) and ending inventory also is higher by \$247 million (\$6,255,021). An increase in beginning inventory causes an increase in cost of goods sold but an increase in ending inventory causes a decrease in cost of goods sold. So the net effect of the two adjustments (\$1,021,021) = the \$29 million decrease in 2004 cost of goods sold.

In a similar manner, 100% cost of goods sold would be increased to \$1,021,021. A note in McKesson's 2003 financial statements reports that 2002 ending inventory of \$6,255,021 would have been \$6,244,021 in a 100% FIFO basis. Beginning inventory would be \$222 million higher (\$6,244,022) and ending inventory for 2003 would be \$1,021 million higher (\$6,241,021). The net effect of the two adjustments (\$222,218) is that 2003 cost of goods sold would be \$4 million higher.

ILLUSTRATION 9-8A
Income statement—
100% FICO

Michigan's 2006 report card on the state of the environment is available at www.michigan.gov/DEQ.

Adjustment would increase the amount of income tax paid for its cost of goods sold if 100% FIFO had been used.

adjusted earnings last year to reflect the cumulative income effect of the difference in income methods for all prior years. We see this step illustrated in Chapter 20 after you reviewed the statement of shareholders' equity in more detail.

Articles also would create a journal entry to adjust the book balances from their current amounts to what those balances would have been using 10% FICA. Since differences in amounts of bonds sold and income are reflected in retained earnings, as was the income tax of 10%, the journal entry updates inventory, retained earnings, and the appropriate income tax account where the income tax effects here and includes these effects in an illustration on

Step 2: The appropriate resource is identified

Chapter 20. The journal entry below, *ignoring income taxes*, adjusts the April 1, 2004 (end of the 2003 fiscal year, beginning of 2004) inventory to the 100% FIFO inventory amount of \$6.24 million.

Inventory, 14 8 1924 218

McKenup must provide in a disclosure note clear justification that the change to LIFO is appropriate. The note also would indicate the effects of the change on items reported on the face of the primary statements, as well as any per share amounts affected the current period and all prior periods presented.

We see an example of such a note in a recent annual report of Schwabert-Maudslayi & Co. national, Inc., the world's largest supplier of fine papers to the tobacco industry, which changed its inventory method from LIFO to FIFO. Graphic 9-7 shows the disclosure in that document the change.

GRAPHIC 9-7
Percentage Change
in County May 2004
Schwartzman-Mason
Interviews by

Note 3. Accounting Changes (in part)

In the future, having a closer relationship with the community is the responsibility of a public management organization. The public sector has to act accordingly, in a still basic management vision of the community, being citizens and not clients. As we said, this change in service orientation is a challenge and a duty for public management organizations, especially since the last few years.

drives the business segment. Arguably, this is a
very important role. If we can show that
it influences the firm's performance, then we
can find a way to improve it. There are many
ways to improve the firm's performance. One
way is to improve the firm's financial
performance. Another way is to improve the
firm's operational performance. A third way
is to improve the firm's customer service.
A fourth way is to improve the firm's
employee satisfaction. A fifth way is to
improve the firm's environmental performance.
A sixth way is to improve the firm's
social performance. A seventh way is to
improve the firm's ethical performance.
A eighth way is to improve the firm's
governance performance. A ninth way is to
improve the firm's risk management
performance. A tenth way is to improve
the firm's overall performance.

1. 在 1990 年，A 公司
 2. 在 1991 年，B 公司
 3. 在 1992 年，C 公司
 4. 在 1993 年，D 公司
 5. 在 1994 年，E 公司

CHANGE TO THE JEO METHOD

When a company changes to the LIFO inventory method from any other method, it usually is impossible to calculate the income effect on prior years. To do so would require assumptions as to when specific LIFO inventory layers were created in years prior to the change. As a result, a company changing to LIFO usually does not report the change retrospectively. Instead, the LIFO method simply is used from that point on. The base year inventory for a future LIFO determination is the beginning inventory in the year the LIFO method is adopted.

A disclosure note is needed to explain (a) the nature of and justification for the change, (b) the effect of the change on current year's income and earnings per share, and (c) why retrospective application was impracticable. When General Cable Corporation adopted the LIFO inventory method, it reported the change in the note shown in Graphic 9-8.

As we discussed in Chapter 8, an important motivation for using LIFO in periods of rising costs is that it produces higher cost of goods sold and lowers income and hence taxes. Notice in the disclosure note that the switch to LIFO caused an increase in income in the year of the switch indicating an environment of decreasing costs. General Cable had this rather than an immediate reduction in its tax bill for switching to LIFO.

*A survey by JACO handled the same way but focusing on managers

Inventories (in part)

For its study, General Cable changed its accounting method for its North American divisions from the FIFO method to the LIFO method. The impact that this switch had on earnings per share was \$0.37 per share in 1974. The cumulative effect of the switch over the years was \$1.40 per share. The switch was made on January 1, 1974, and the effect was reported on the first financial statement issued after the change. The switch was made on January 1, 1974, and the effect was reported on the first financial statement issued after the change. The switch was made on January 1, 1974, and the effect was reported on the first financial statement issued after the change.

GRAPHIC 9-8

Change in Inventory Method Disclosure—General Cable Corporation

| Company | FIFO EPS | LIFO EPS | % Effect of the Switch |
|------------------|----------|----------|------------------------|
| DuPont | \$8.27 | \$8.00 | 8.7 |
| Eastman Kodak | 6.8 | 1.54 | 8.3 |
| Frederick's | 4.40 | 1.53 | 36.2 |
| General Steel | 4.6 | 3.96 | 4.1 |
| Marathon Oil | 4.84 | 4.32 | 10.2 |
| Phillips 66 Oil | 3.77 | 2.02 | 3.0 |
| Strobel van Kamp | 2.64 | 2.76 | 26.8 |

GRAPHIC 9-9

Income Effect of Change to LIFO—1974 Examples

Recall from Chapter 8 that inflation was extremely high in 1974 causing hundreds of companies to switch to LIFO. These companies were likely motivated by the opportunity to reduce their income taxes. Graphic 9-9 lists the earnings per share (EPS) effect of the switch from FIFO to LIFO for just a few of the hundreds of companies that switched to LIFO in 1974.

ADDITIONAL CONSIDERATION

When changing from one generally accepted accounting principle to another, a company must justify that the change results in financial information that more properly portrays operating results and financial position. For income tax purposes, a company generally must obtain consent from the Internal Revenue Service before changing an accounting method. A special form also must be filed with the IRS when a company intends to adopt the LIFO inventory method. When a company changes from LIFO for tax purposes, it can't change back to FIFO until five tax returns have been filed using the LIFO method.

Inventory Errors

Inventory errors must be corrected when they are discovered. In Chapter 4 we briefly discussed the correction of accounting errors and Chapter 20 provides in-depth coverage. Here we provide an overview of the accounting treatment and disclosures of the effects of inventory errors. Inventory errors include the over- or understatement of ending inventory due to mistakes in physical count or a mistake in pricing inventory quantities. Also, errors include the over- or understatement of purchases which could be caused by the cutoff errors described in Chapter 8.

If an inventory error is discovered in the same accounting period it occurred, the adjusting entry should simply be reversed and the appropriate entry recorded. This situation creates no particular reporting problem.

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SOLUTION

1. Analysis: U = Understated O = Overstated

| 2004 | | 2003 | |
|--------------------------|----------|--------------------------|----------|
| Beginning inventory | | Beginning inventory | ✓ 50,000 |
| Plus: Net purchases | | Plus: Net purchases | ✓ 30,000 |
| Less: Ending inventory | U-50,000 | Less: Ending inventory | ✓ 20,000 |
| Cost of goods sold | O-30,000 | Cost of goods sold | ✓ 40,000 |
| Revenues | | Revenues | |
| Less: Cost of goods sold | O-50,000 | Less: Cost of goods sold | ✓ 40,000 |
| Less: Other expenses | | Less: Other expenses | |
| Net income | U-50,000 | Net income | O-40,000 |
| Retained earnings | U-50,000 | Retained earnings | ✓ 10,000 |

2. Prepare a journal entry to correct the errors

| | | |
|-------------------|--------|----------|
| Accounts payable | 30,000 | |
| Inventory | | ✓ 30,000 |
| Retained earnings | | ✓ 30,000 |

Earnings Quality

A change in the accounting method a company uses to value inventory is one way managers can artificially manipulate income. However, this method of income manipulation is transparent. As we learned in a previous section, the effect on income of switching from one inventory method to another must be disclosed. That disclosure restores comparability between periods and enhances earnings quality.

On the other hand, inventory write-downs are included in the broader category of "big bath" accounting techniques some companies use to manipulate earnings. By overstating the write-down, profits are increased in future periods as the inventory is used or sold. When the demand for many high technology products decreased significantly in late 2000 and early 2001, several companies, including **Sycomore Networks**, **Lucent Technologies**, and **JUNiper Networks**, recorded large inventory write-offs, some in the billions of dollars. In the introduction to this chapter, we discussed the over \$2 billion inventory write-off recorded by **Cisco Systems**. Certainly these write-offs reflected the existing economic environment. However, some analysts questioned the size of some of the write-offs. For example, William Schaff, an investor officer at **Bay Isle Financial** noted that Cisco's write-off was approximately equal to the balance of inventory on hand at the end of the previous quarter and about equal to the cost of goods actually sold during the quarter.

A financial analyst must carefully consider the effect of any significant asset write-down on the assessment of a company's permanent earnings.

WILLIAM SCHAFF—
BAY ISLE FINANCIAL

I have nothing on which to base these theories other than the fact that writing off a whole quarter's inventory seems a bit much to just shrug off. It's very disturbing.

Inventory write-downs
when are cited as a
method of earnings
management.



FINANCIAL REPORTING CASE SOLUTION

1. Sears values its inventory at the lower of cost or market. What does that mean? Under what circumstances might Sears be justified in reporting its inventory at less than cost? (p. 402) A departure from historical cost is warranted when the probable benefits to be re-

received from any asset drop below the asset's cost. The benefits from inventory result from the ultimate sale of the goods. Deterioration, obsolescence, and changes in price levels are situations that might cause the benefits to be received from sale to drop below cost. The lower-of-cost-or-market approach recognizes losses in the period when the value of the inventory declines below its cost rather than in the period in which the goods ultimately are sold.

How does Sears avoid counting all its inventory every time it produces financial statements? What are internal price indices used for? (p. 470) Sears uses the dollar-value LIFO retail inventory method. This retail inventory estimation technique avoids the counting of ending inventory by keeping track of goods available for sale not only at cost but also at retail prices. Each period's sales, at sales prices, are deducted from the retail amount of goods available for sale to arrive at ending inventory at retail. This amount is then converted to cost using a cost-to-retail percentage.

The dollar-value LIFO retail method uses a price index to first convert ending inventory at retail to base-year prices. Yearly LIFO layers are then determined and each layer is converted to that year's current-year retail prices using the year's price index and then to cost using the layer's cost-to-retail percentage. For the price index, Sears uses an internally generated index rather than an external price index. ■

THE BOTTOM LINE

Inventory is valued at the lower of cost or market (LCM). The designated market value on the LCM rule is the middle number of replacement cost (RC), net realizable value (NRV), and net realizable value less a normal profit margin ($NRV - NP$).

The gross profit method estimates cost of goods sold which is then subtracted from cost of goods available for sale to estimate ending inventory. The estimate of cost of goods sold is determined by subtracting an estimate of gross profit from net sales. The estimate of gross profit is determined by multiplying the historical gross profit ratio times net sales.

The retail inventory method determines the amount of ending inventory at retail by subtracting sales for the period from goods available for sale at retail. Ending inventory at retail is then converted to cost by multiplying by the cost-to-retail percentage, which is based on a current relationship between cost and selling price.

By the conventional retail method, we estimate average cost at lower of cost or market. Average cost is estimated by including beginning inventory in the calculation of the cost-to-retail percentage. LCM is estimated by excluding markdowns from the calculation. Markdowns are subtracted in the retail column after the percentage is calculated.

By the LIFO retail method, ending inventory includes the beginning inventory plus the current year's layer. To determine layers, we compare ending inventory at retail to beginning inventory at retail, and assume that no more than one inventory layer is added if inventory increases. Each layer carries its own cost-to-retail percentage which is used to convert each layer from retail to cost. The dollar-value LIFO retail inventory method combines the LIFO retail method and the dollar-value LIFO method (Chapter 8) to estimate LIFO from retail prices when the price level has changed.

Most changes in inventory methods are reported retrospectively. This means revising all subsequent periods' financial statements to appear as if the newly adopted inventory method had been applied all along. An exception is a change in the LIFO method. In this case, it usually is impossible to calculate the income effect on prior years. To do so would require assumptions as to when specific LIFO inventory layers were created in years prior to the change. As a result, a company changing to LIFO usually does not report the change retrospectively. Instead, the LIFO method simply is used from that point on.

If a material inventory error is discovered in an accounting period subsequent to the period in which the error is made, previous years' financial statements that were incorrect as a result of the error are retrospectively restated to reflect the correction. Account balances are corrected by journal entry. A correction of retained earnings is reported as a prior period adjustment to the beginning balance in the statement of shareholders' equity. In addition, a disclosure note is needed to describe the nature of the error and the reason for the correction on balance. ■

Purchase commitments are contracts that obligate a company to purchase a specified amount of merchandise or raw materials at specified prices on or before specified dates. Companies enter into these agreements to make sure they will be able to obtain important inventory as well as to protect against increases in purchase price. However, if the purchase price decreases before the agreement is executed, the commitment has the disadvantage of requiring the company to purchase inventory at a higher than market price. If this happens, a loss on the purchase commitment is recorded.

Purchase commitments are recorded as purchases at the contract price. If the market price is lower than the contract price, a loss is recognized at the end of a reporting period when market price is less than contract price. In effect, the LCM rule is applied to purchase commitments. This is best understood by the example in Illustration 9A-1.

ILLUSTRATION 9A-1 Purchase Commitments

In July 2006, the Loser for Company signed a purchase commitment. The first requires acquisition of purchase inventory of \$500,000 by December 15, 2006. The second requires the company to purchase inventory to \$600,000 by February 15, 2007. Acquisition is at year-end is December 31. The company uses a periodic inventory system.

Contract Period within Fiscal Year

The contract period for the first commitment is contained within a single fiscal year. Loser would record the purchase at the contract price if the market price at date of acquisition is at least equal to the contract price of \$500,000.¹

If market price is equal to or greater than the contract price, the purchase is recorded at the contract price.

If market price is less than the contract price, a loss is recognized at the end of the reporting period when market price is less than contract price.

| | | |
|----------------------------|---------|---------|
| Inventory (contract price) | 500,000 | |
| Cash (or accounts payable) | | 500,000 |

If the market price at acquisition is less than the contract price, inventory is recorded at the market price and a loss is recognized.² For example, if the market price is \$425,000, the following entry records the purchase:

| | | |
|-----------------------------|---------|---------|
| Inventory (market price) | 425,000 | |
| Loss of purchase commitment | 75,000 | |
| Cash (or accounts payable) | | 500,000 |

The objective of this treatment is to associate the loss with the period in which the price declines rather than with the period in which the company eventually sells the inventory. This is the same objective as the LCM rule you studied in the chapter.

Contract Period Extends beyond Fiscal Year

Now let's consider Loser's second purchase commitment that is outstanding at the end of the fiscal year 2006 (that is, the purchases have not yet been made). If the market price at the end of the year is at least equal to the contract price of \$600,000, no entry is recorded. However, if the market price at year-end is less than the contract price, a loss must be recognized.

¹ Loser will also have the option of purchasing inventory at the contract price if the market price is less than the contract price. In this case, the company would record the purchase at the contract price. If the market price is less than the contract price, a loss is recognized at the end of the reporting period when market price is less than contract price.



to satisfy the LCM objective of associating the loss with the period in which the price declines rather than with the period in which the company eventually sells the inventory. Let us say the year-end market price of the inventory for Lasser's second purchase commitment is \$40,000. The following adjusting entry is recorded:

December 31, 2006

| | |
|--|--------|
| Estimated loss on purchase commitment \$90,000 (\$40,000 - \$50,000) | 60,000 |
| Estimated liability on purchase commitment | 60,000 |

At this point, the loss is an *estimated* loss. The actual loss, if any, will not be known until the inventory actually is purchased. The best estimate of the market price on date of purchase is the current market price. In this case \$540,000. Because no inventory has been acquired, we can't credit inventory for the LCM loss. Instead, a liability is created because, in a sense, the loss represents an obligation to the seller of the inventory to purchase inventory above market price.

The entry to record the actual purchase on or before February 15, 2007, will vary depending on the market price of the inventory at date of purchase. If the market price is unchanged or has decreased from the year-end price, the following entry is made:

| | |
|---|---------|
| Inventory (current price) 540,000 | |
| Estimated liability on purchase commitment 60,000 | |
| Cash for accounts payable | 600,000 |

If on the market price of the inventory increases, there is no recovery of the \$90,000 loss recognized in 2006. Remember that when the LCM rule is applied, the reduced inventory value—in this case the reduced value of purchases, is considered to be the new cost and any recovery of value is ignored.

If the market price declines even further from year-end levels, an additional loss is recognized. For example, if the market price of the inventory covered by the commitment declines to \$35,000, the following entry is recorded:

| | |
|---|---------|
| Inventory, market price 510,000 | |
| Cost of purchase commitment \$540,000 - \$50,000 30,000 | |
| Estimated liability on purchase commitment 60,000 | |
| Cash for accounts payable | 600,000 |

The total loss on this purchase commitment of \$90,000 is thus allocated between 2006 and 2007 according to when the decline in value of the inventory covered by the commitment occurred.

If there are material amounts of purchase commitments outstanding at the end of a reporting period, the contract details are disclosed in a note. This disclosure is required even if no estimate has been recorded. ■

If the market price at purchase is less than the year-end price, the loss is the difference.

A liability is recorded for the market price on purchase commitment.

If market price on purchase date is higher than year-end price, no entry is recorded at year-end and market price.

If market price on purchase date declines from year-end price, the purchase is recorded at the market price.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 9-1 Explain the lower-of-cost-or-market approach to valuing inventory.
- Q 9-2 What is the meaning of market in the lower-of-cost-or-market rule?
- Q 9-3 What are the various ways the LCM determination can be made?
- Q 9-4 Describe the preferred method of adjusting from cost to market for material inventory write-downs.
- Q 9-5 Explain the gross profit method of estimating ending inventory.
- Q 9-6 The Rodri Company uses the gross profit method to estimate ending inventory and cost of goods sold. The cost percentage is determined based on historical data. What factors could cause the estimate of ending inventory to be overstated?
- Q 9-7 Explain the retail inventory method of estimating ending inventory.
- Q 9-8 Both the gross profit method and the retail inventory method provide a way to estimate ending inventory. What is the main difference between the two estimation techniques?

- Q 9-9 Define each of the following retail terms: initial markup, additional markup, markup cancellations, and dollar markdown calculation.
- Q 9-10 Explain how to calculate the average cost of inventory when using the retail inventory method.
- Q 9-11 What is the conventional retail method?
- Q 9-12 Explain the LIFO retail inventory method.
- Q 9-13 Discuss the treatment of freight-in, net markups, normal spoilage, and employee discounts in the application of the retail inventory method.
- Q 9-14 Explain the difference between the retail inventory method using LIFO and the dollar value LIFO method.
- Q 9-15 Describe the accounting treatment for a change in inventory method other than to LIFO.
- Q 9-16 When a company changes its inventory method to LIFO, an exception is made for the way accounting changes usually are reported. Explain the difference in the accounting treatment of a change in the LIFO inventory method from other inventory methods.
- Q 9-17 Explain the accounting treatment of material inventory errors discovered in an accounting period subsequent to the period in which the error is made.
- Q 9-18 An error in recording inventory in 2004 was undetected. What is the effect of the understatement on the following:
- | | |
|-------|------------------------|
| 2004: | Cost of goods sold |
| | Net income |
| 2005: | Ending retail earnings |
| | Net purchases |
| | Cost of goods sold |
| | Net income |
| | Ending retail earnings |
- Q 9-19 Based on Appendix 9) Define purchase commitments. What is the advantage(s) of these agreements to buyers?
- Q 9-20 Based on Appendix 9) Explain how the lower-of-cost-or-market rule is applied to purchase commitments.

BRIEF EXERCISES

BE 9-1 Lower of cost or market

LO1

Rum Electronics has one product in its ending inventory. Per unit data consist of the following: cost, \$25; replacement cost, \$18; selling price, \$30; disposal costs, \$4. The normal profit margin is 32% of selling price. What unit value should Rum use when applying the LCM rule to ending inventory?

BE 9-2 Lower of cost or market

LO1

SLR Corporation has 1,000 units of each of its two products in its year-end inventory. Per unit data for each of the products are as follows:

| | Product 1 | Product 2 |
|----------------------|-----------|-----------|
| Cost | \$50 | \$30 |
| Replacement cost | 48 | 26 |
| Selling price | 70 | 36 |
| Disposal costs | 6 | 8 |
| Normal profit margin | 10 | 8 |

Determine the balance sheet carrying value of SLR's inventory assuming that the LCM rule is applied to individual products. What is the before-tax income effect of the LCM adjustment?

BE 9-3 Gross profit method

LO2

On February 26 a firestorm destroyed the entire inventory stored in a warehouse owned by the Rockford Corporation. The following information is available from the records of the company's periodic inventory system: beginning inventory, \$225,000; purchases and net sales from the beginning of the year through February 26, \$400,000 and \$600,000, respectively; gross profit ratio, 30%. Estimate the cost of the inventory destroyed by the firestorm using the gross profit method.

BE 9-4 Gross profit method solving for unknown

LO2

Adams Corporation estimates that it lost \$150,000 in inventory from a recent flood. The following information is available from the records of the company's periodic inventory system: beginning inventory, \$150,000; purchases and net sales from the beginning of the year through the date of the flood, \$450,000 and \$700,000, respectively. What is the company's gross profit ratio?

9-8
First-inventory
method: average cost

Kirklin Wholesale uses a periodic inventory system and the retail inventory method to estimate ending inventory and cost of goods sold. The following data are available for the quarter ending September 30, 2006:

| | Cost | Retail |
|---------------------|-----------|------------|
| Beginning inventory | \$300,000 | \$ 450,000 |
| Net purchases | 861,000 | 1,000,000 |
| Freight-in | 22,000 | |
| Net markups | | 48,000 |
| Net markdowns | | 8,000 |
| Net sales | | 1,200,000 |

Estimate ending inventory and cost of goods sold (average cost).

9-9
First-inventory
method: FIFO

Refer to the situation described in 9-8. Estimate ending inventory and cost of goods sold (FIFO).

9-10
Conventional retail
method

Refer to the situation described in 9-8. Estimate ending inventory and cost of goods sold using the conventional method (average cost and the LCM approximation).

9-11
Retail inventory
method: LIFO

Robinson Department Store uses a periodic inventory system and the retail inventory method. Accounting records provided the following information for the 2006 fiscal year:

| | Cost | Retail |
|---------------------|-----------|------------|
| Beginning inventory | \$220,000 | \$ 400,000 |
| Net purchases | 840,000 | 800,000 |
| Freight-in | 17,000 | |
| Net markups | | 16,000 |
| Net markdowns | | 8,000 |
| Normal spoilage | | 3,000 |
| Net sales | | 300,000 |

The company records sales to employees net of discounts. These discounts totaled \$45,000 for the year. Estimate ending inventory and cost of goods sold using the conventional method (average cost and the LCM approximation).

9-12
Dollar-value LIFO retail

On January 1, 2006, Supermarket Variety Store adopted the dollar-value LIFO retail inventory method. Accounting records provided the following information:

| | Cost | Retail |
|---------------------------------|-----------|-----------|
| Beginning inventory | \$ 40,000 | \$ 66,000 |
| Net purchases | 155,440 | 270,000 |
| Net markups | | 8,000 |
| Net markdowns | | 8,000 |
| Net sales | | 250,000 |
| Retail price index, end of year | | 1.02 |

Calculate the inventory value at the end of the year using the dollar-value LIFO retail method.

9-13
Dollar-value LIFO retail

Refer to the situation described in 9-12. During 2007, purchases at cost and retail were \$166,000 and \$201,000, respectively. Net markups, net markdowns, and net sales for the year were \$3,000, \$4,000, and \$284,000, respectively. The retail price index at the end of 2007 was 1.05. Calculate the inventory value at the end of 2007 using the dollar-value LIFO retail method.

9-14
Inventory
method: LIFO

In 2006, Hupyard Lumber changed its inventory method from LIFO to FIFO. Inventory at the end of 2005 if \$127,000 would have been \$ 45,000 if FIFO had been used. Inventory at the end of 2006 is \$162,000 using the new FIFO method but would have been \$135,000 if the company had continued to use LIFO. Describe the steps Hupyard should take to report this change. What is the effect of the change on 2006 cost of goods sold?

9-15
Inventory
method: LIFO

In 2006, Wade Window and Glass changed its inventory method from FIFO to LIFO. Inventory at the end of 2005 is \$150,000. Describe the steps Wade Window and Glass should take to report this change.

BE 9-13
Inventory error

LO 1

BE 9-14
Inventory error

LO 1

In 2006 Wireline International, Inc., a controller discovered that ending inventories for 2004 and 2005 were overstated by \$200,000 and \$500,000, respectively. Determine the effect of the error on retained earnings at January 1, 2006. Ignore income taxes.

Refer to the situation described in BE 9-13. What steps would be taken to report the error in the 2006 financial statements?

EXERCISES

Additional exercises and problems are available on the test website: www.mhhe.com/spkandark

E 9-1
Lower of cost or
market

LO 1

Herrman Company has three products in its ending inventory. Specific per unit data for each of the products follows.

| | Product 1 | Product 2 | Product 3 |
|----------------------|-----------|-----------|-----------|
| Cost | \$20 | \$ 90 | \$40 |
| Replacement cost | 18 | 85 | 40 |
| Selling price | 40 | 20 | 70 |
| Disposal costs | 0 | 40 | 10 |
| Normal profit margin | 5 | 30 | 12 |

Required

What unit values should Herrman use for each of its products when applying the LCM rule to its ending inventory?

E 9-2
Lower of cost or
market

LO 1

Tatum Company has four products in its inventory. Information about the December 31, 2006, inventory is as follows.

| Product | Total
Cost | Total
Replacement
Cost | Total Net
Realizable
Value |
|---------|---------------|------------------------------|----------------------------------|
| 01 | \$200,000 | \$ 150,000 | \$160,000 |
| 02 | 90,000 | 85,000 | 100,000 |
| 03 | 60,000 | 40,000 | 50,000 |
| 04 | 30,000 | 28,000 | 30,000 |

The normal gross profit percentage is 25% of cost.

Required

- Determine the replacement inventory carrying value at December 31, 2006, assuming the LCM rule is applied to individual products.
- Assuming that Tatum recognizes an inventory write-down as a separate income statement item, determine the amount of the loss.

E 9-3
Gross profit method

LO 2

On September 22, 2006, a flood destroyed the entire merchandise inventory on hand in a warehouse owned by the Rocklin Sporting Goods Company. The following information is available from the records of the company's periodic inventory system.

| | |
|---|-----------|
| Inventory, January 1, 2006 | \$ 82,000 |
| Net purchases, January 1 through September 22 | 370,000 |
| Net sales January through September 22 | 550,000 |
| Gross profit ratio | 25% |

Required

Estimate the cost of inventory destroyed in the flood using the gross profit method.

E 9-4
Gross profit method

LO 2

On November 21, 2006, a fire at Hodge Company's warehouse caused severe damage to its merchandise. If Product Tex, Hodge estimates that all usable damaged goods can be sold for \$12,000. The following information was available from the records of Hodge's periodic inventory system.

| | |
|---|-----------|
| Inventory, November 1 | \$100,000 |
| Net purchases from November 1 to the date of the fire | 140,000 |
| Net sales from November 1 to the date of the fire | 220,000 |

Based on recent history, Hodge's gross profit ratio on Product Tex is 35% of net sales.

Required

Calculate the estimated loss on the inventory from the fire, using the gross profit method.

ACPA adapted

9.5
gross profit method

A fire destroyed a warehouse of the Green & Chop, Inc., on May 4, 2006. Accounting records at that date indicated the following:

| | |
|--|-------------|
| Merchandise Inventory, January 1, 2006 | \$1,900,000 |
| Purchases in late | 5,800,000 |
| Freight-in | 400,000 |
| Sales to date | \$8,200,000 |

The gross profit rate has averaged 30% of sales for the past four years.

Required

Use the gross profit method to estimate the cost of the inventory destroyed in the fire.

9.6
2x water method
2x 3x mark down
percentage

National Distributing Company uses a periodic inventory system to track its merchandise inventory and the gross profit method to estimate ending inventory and cost of goods sold for interim periods. Net purchases for the month of August were \$31,000. The July 31 and August 31, 2006 financial statements contained the following information:

**Income Statements
For the Months Ending**

| | August 31, 2006 | July 31, 2006 |
|-----------|-----------------|---------------|
| Net sales | \$50,000 | \$40,000 |

**Balance Sheets
At**

| | August 31, 2006 | July 31, 2006 |
|-----------------------|-----------------|---------------|
| Assets | | |
| Merchandise Inventory | \$28,000 | \$27,000 |

Required

Describe the company's cost percentage.

9
inventory
cost average cost

Sam Linsman General Store uses a periodic inventory system and the retail inventory method to estimate ending inventory and cost of goods sold. The following data are available for the month of October 2006:

| | Cost | Retail |
|---------------------|----------|----------|
| Beginning inventory | \$35,000 | \$40,000 |
| Net purchases | 19,120 | 21,600 |
| Net markups | | 1,200 |
| Net markdowns | | 500 |
| Net sales | | \$2,000 |

Required

Estimate the average cost of ending inventory and cost of goods sold for October. Do not approximate LCM.

9
conventional retail
method

Cambridge Corporation uses the retail method to value its inventory. The following information is available for the year 2006:

| | Cost | Retail |
|--|-----------|-----------|
| Merchandise Inventory, January 1, 2006 | \$190,000 | \$280,000 |
| Purchases | 600,000 | \$840,000 |
| Freight-in | 8,000 | |
| Net markups | | 20,000 |
| Net markdowns | | 4,000 |
| Net sales | | \$600,000 |

Required

Calculate the December 31, 2006, inventory that approximates average cost, lower of cost or market.

9.8
inventory
method

Cambridge Corporation owns a chain of hardware stores throughout the state. The company uses a periodic inventory system and the retail inventory method to estimate ending inventory and cost of goods sold. The following data are available for the three months ending March 31, 2006:

| | Cost | Retail |
|---------------------|-----------|-----------|
| Beginning inventory | \$160,000 | \$280,000 |
| Net purchases | 607,750 | 840,000 |
| Net markups | | 20,000 |
| Net markdowns | | 4,000 |
| Net sales | | 800,000 |

Required:

Estimate the LIFO cost of ending inventory and cost of goods sold for the three months ending March 2006. Assume stable retail prices during the period.

E 9-10
Conventional retail
method; normal
spillage

• 10 min

Almaden Valley Variety Store uses the retail inventory method to estimate ending inventory and cost of goods sold. Data for 2006 are as follows.

| | Cost | Retail |
|---------------------|-----------|-----------|
| Beginning inventory | \$ 12,000 | \$ 20,000 |
| Purchases | 102,000 | 65,000 |
| Freight-in | 2,400 | |
| Purchase returns | 4,000 | 7,000 |
| Net markups | | 6,000 |
| Net markdowns | | 3,000 |
| Normal spillage | | 4,200 |
| Net sales | | 152,000 |

Required:

Estimate the ending inventory and cost of goods sold for 2006, applying the conventional retail method average LCM.

E 9-11
Conventional retail
method; employee
discounts

• 10 min

LeMay Department Store uses the retail inventory method to estimate ending inventory for its monthly financial statements. The following data pertain to two of its larger departments for the month of March 2006.

| | Cost | Retail |
|---------------------|-----------|-----------|
| Beginning inventory | \$ 60,000 | \$ 60,000 |
| Purchases | 207,000 | 400,000 |
| Freight-in | 14,488 | |
| Purchase returns | 4,000 | 6,000 |
| Net markups | | 5,800 |
| Net markdowns | | 3,500 |
| Normal breakage | | 6,000 |
| Net sales | | 260,000 |
| Employee discounts | | 1,800 |

Sales are recorded net of employee discounts.

Required:

1. Compute estimated ending inventory and cost of goods sold for March applying the conventional retail method average LCM.
2. Recalculate the cost-to-retail percentage using the average cost method and ignoring LCM considerations.

E 9-12
Retail inventory
method; solving for
unknowns

• 10 min

Adams Corporation uses a periodic inventory system and the retail inventory method to estimate ending inventory and cost of goods sold. The following data are available for the month of September 2006.

| | Cost | Retail |
|---------------------|----------|----------|
| Beginning inventory | \$25,000 | \$35,000 |
| Net purchases | 10,500 | ? |
| Net markups | | 4,000 |
| Net markdowns | | 2,000 |
| Net sales | | ? |

The company used the average cost flow method to estimate ending inventory at the end of September with \$17,500. If the company had used the LIFO cost flow method, the cost-to-retail percentage would have been 50%.

Required:

Compute net purchases at retail and net sales for the month of September.

E 9-13
Multiple choice: LCM
inventory estimation
techniques

• 10 through 15 min

The following questions dealing with the lower-of-cost-or-market rule for valuing inventory and inventory estimation techniques are adapted from questions that appeared in CPA examinations. Determine the response that best completes the statement or answers the question.

When reporting the ending statement of cost of goods sold, when a company applying the lower-of-cost-or-market method reports its inventory at retail cost, it should

I. The original cost is less than replacement cost.

II. The net realizable value is greater than replacement cost.

- I only.
- II only.
- both I and II.
- neither I nor II.

4. Moss Co. has determined its December 31, 2006 inventory on a FIFO basis to be \$400,000. Information regarding its December 31, 2006 inventory follows:

| | |
|----------------------------|-----------|
| Estimated selling price | \$405,000 |
| Estimated cost of disposal | 20,000 |
| Normal profit margin | 80,000 |
| Current replacement cost | 360,000 |

Moss records losses that result from applying the lower-of-cost-or-market rule. At December 31, 2006, what should be the net carrying amount of Moss's inventory?

- \$400,000
- \$350,000
- \$360,000
- \$340,000

5. Finch Inc. uses the conventional retail inventory method to account for inventory. The following information relates to Finch's operations:

| | Cost | Retail |
|-----------------------------------|-----------|-----------|
| Beginning Inventory and purchases | \$400,000 | \$920,000 |
| Net markups | | 40,000 |
| Net markdowns | | 60,000 |
| Sales | | 780,000 |

What amount should be reported as cost of goods sold for 2006?

- \$480,000
- \$400,000
- \$520,000
- \$525,000

6. The following information is available for Cooke Company at 2006:

| | |
|--------------------|-------------|
| Net sales | \$1,200,000 |
| Freight-in | 45,000 |
| Purchase discounts | 25,000 |
| Ending inventory | 20,000 |

The gross margin is 40% of net sales. What is the cost of goods available for sale?

- \$840,000
- \$960,000
- \$110,000
- \$1,200,000

7. 4
Dollar-value LIFO retail

On January 1, 2006, the Brunswick Blue Turquoise adopted the dollar-value LIFO retail method. The following data are available for 2006:

| | Cost | Retail |
|------------------------------|-----------|-----------|
| Beginning inventory | \$ 77,280 | \$132,000 |
| Net purchases | 12,500 | 285,000 |
| Net markups | | 8,000 |
| Net markdowns | | 11,000 |
| Net sales | | 272,000 |
| Retail price index, 12/31/06 | | 1.04 |

Required:

1. Calculate the estimated ending inventory and cost of goods sold for 2006.

8. 0
Dollar-value LIFO retail

Coyote Corporation adopted the dollar-value LIFO retail method on January 1, 2006. On that date, the cost of the inventory on hand was \$15,000 and its retail value was \$18,750. Information for 2006 and 2007 is as follows:

| Date | Ending Inventory at Retail | Retail Price Index | Cost-to-Retail Percentage |
|----------|----------------------------|--------------------|---------------------------|
| 12/31/06 | \$ 200 | 1.25 | 62% |
| 12/31/07 | 500 | 1.30 | 55 |

Required:

1. What is the cost-to-retail percentage for the inventory on hand at 1/1/06?
2. Calculate the inventory value at the end of 2006 and 2007 using the dollar-value LIFO retail method.

E 9-16

Dollar-value LIFO retail

Luzon-Mainer Specialty Shoppes decided to use the dollar-value LIFO retail method to value its inventory. Accounting records provide the following data:

| | Cost | Retail |
|--|-----------|-----------|
| Merchandise inventory, January 1, 2006 | \$160,000 | \$250,000 |
| Net purchases | 150,000 | 110,000 |
| Net markups | | 3,000 |
| Net markdowns | | 2,000 |
| Net sales | | 300,000 |

Percent retail price increases are as follows:

| | |
|-------------------|------|
| January 1, 2006 | 1.00 |
| December 31, 2006 | 1.10 |

Required:

1. Determine ending inventory and cost of goods sold.

E 9-17

Dollar-value LIFO retail
solving for unknowns

Brown Company adopted the dollar-value LIFO retail method at the beginning of 2006. Information that appears is as follows with certain data item(s) left missing:

| Date | Inventory | | Retail Price Index | Cost-to-Retail Percentage |
|---------------------|-----------|----------|--------------------|---------------------------|
| | Cost | Retail | | |
| Inventory, 1/1/06 | \$21,000 | \$28,000 | 1.00 | ? |
| Inventory, 12/31/06 | 22,792 | 23,600 | 1.12 | ? |
| 2007 net purchases | 60,000 | 98,000 | | |
| 2007 net sales | | 80,000 | | |
| Inventory, 12/31/07 | ? | ? | 1.20 | |

Required:

1. Determine the missing data.

E 9-18

Change in inventory
costing methods

In 2006, CPS Company changed its method of valuing its inventories from the LIFO method to the average cost method. At December 31, 2005, CPS's inventories were \$32 million (FIFO). CPS's records indicated that inventories would have totaled \$1.5 million under the LIFO method determined on an average cost basis.

Required:

1. Prepare the journal entry to record the adjustment (ignore income taxes).
2. Briefly describe other steps CPS should take to report the change.

E 9-19

Change in inventory
costing methods

Goodland Company has used the FIFO method in inventory valuation since it began operations in 2003. In 2006, Goodland is changing to the average cost method. Determining inventory values at the beginning of 2006, the following schedule shows year-end inventory balances under the FIFO and average cost methods.

| Year | FIFO | Average Cost |
|------|----------|--------------|
| 2003 | \$45,000 | \$54,000 |
| 2004 | 75,000 | 71,000 |
| 2005 | 83,000 | 78,000 |

Required:

1. Ignoring income taxes, prepare the 2006 journal entry to adjust the accounts to reflect the average cost method.
2. How much higher or lower would cost of goods sold be to be 2005 revised income statement?

E 9-20

Error correction;
inventory error

During 2006, WMC Corporation discovered that the ending inventories reported in its financial statements were misstated by the following amounts:

| | | | |
|--|------|---------------|-----------|
| | 2004 | Overstated by | \$120,000 |
| | 2005 | Overstated by | 150,000 |

WMC uses a periodic inventory system and the FIFO cost method.

Required:

1. Determine the effect, if these errors did remain, earnings as January 1, 2006, before any adjustment. Explain your answer. Ignore income taxes.
2. Prepare a journal entry to correct the error. What other step(s) would be taken in connection with the error?

Inventory errors

For each of the following inventory errors occurring in 2006, determine the effect of the error on 2006's cost of goods sold, net income, and retained earnings. Assume that the error is not discovered until 2007 and that a perpetual inventory system was in use in 2006.

understated CO = overstated NE = no effect

a. Errors

1. Understatement of ending inventory
2. Understatement of beginning inventory
3. Understatement of purchases
4. Understatement of ending inventory
5. Understatement of purchases
6. Understatement of beginning inventory
7. Understatement of purchases plus understatement of ending inventory by the same amount

Cost of Goods Sold Net Income Retained Earnings

CO = overstated NI = overstated RE = overstated

b. Inventory error

In 2006, the internal auditors of Development Technologies, Inc. discovered that a \$4 million purchase of new equipment in 2006 was recorded in 2005 instead. The physical inventory count at the end of 2005 was correct.

Required:
Prepare the journal entry needed in 2006 to correct the error. Also, briefly describe any other measures Development Technologies would also do in connection with correcting the error.

The following questions dealing with dollar-value LIFO retail and inventory errors are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statements or questions.

On December 31, 2005, Jason Company adopted the dollar-value LIFO retail inventory method. Inventory data for 2006 are as follows:

| | LIFO Cost | Retail |
|--------------------------------|-----------|-----------|
| Inventory, 12/31/05 | \$360,000 | \$570,000 |
| Inventory, 12/31/06 | ? | \$600,000 |
| Inventory price level for 2006 | | 1.05 |
| Cost to retail ratio for 2006 | | 70% |

Under the LIFO retail method, Jason's inventory at December 31, 2006, should be

- a. \$360,000
- b. \$400,000
- c. \$477,000
- d. \$450,000

2. Breen Co.'s beginning inventory at January 1, 2006, was understated by \$20,000, and its ending inventory was overstated by \$10,000. As a result, Breen's cost of goods sold for 2006 was

- a. understated by \$30,000
- b. overstated by \$30,000
- c. understated by \$10,000
- d. overstated by \$10,000

Listed below are several terms and phrases associated with inventory measurement. Pair each item from List A, by letter, with the term (from List B) that is most appropriately associated with it.

List A

1. Gross profit ratio

List B

2. Gross profit percentage
3. Additional markup
4. Markup
5. Beginning inventory and LIFO
6. Retail inventory method
7. Cost of goods sold
8. Dollar-value LIFO retail
9. Normal shrinkage
10. Retrospective restatement
11. Inventory discounts
12. Net realizable value

- a. Reduction in selling price below the original selling price
- b. Beginning inventory is not included in the calculation of the cost-to-retail percentage
- c. Reduction in the cost-to-retail ratio after the calculation of the cost-to-retail percentage
- d. Gross profit divided by net sales
- e. Material inventory error discovered in a subsequent year
- f. Must be added to sales if sales are recorded net of discounts
- g. Deductive in the retail column to arrive at goods available for sale at retail
- h. Divide cost of goods available for sale by goods available at retail
- i. Average cost
- j. Understatement of ending inventory
- k. Increase in selling price subsequent to initial markup
- l. Selling in the dollar-value method
- m. Applying changes requiring retrospective treatment

E 9-75

Multiple choice; CMA exam; conventional retail method; no vertical errors

LO4-07

The following questions dealing with inventory are adapted from questions that previously appeared at Certified Management Accountants (CMA) examinations. The CMA designation sponsored by the American Management Association (www.pma.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

1. All sales and purchases for the year at Kras Corporation are credit transactions. Ron uses a perpetual inventory system. During the year, it shipped certain goods that were erroneously obtained from ending inventory although the sale was not recorded. Which one of the following statements is correct?
 - a. Accounts receivable was not affected, inventory was not affected, sales were understated, and cost of goods sold was understated.
 - b. Accounts receivable was understated, inventory was not affected, sales were understated, and cost of goods sold was understated.
 - c. Accounts receivable was understated, inventory was overstated, sales were understated, and cost of goods sold was overstated.
 - d. Accounts receivable was understated, inventory was not affected, sales were understated, and cost of goods sold was not affected.
2. During the year 1 year-end physical inventory count at Beggs Corporation, \$40,000 worth of inventory was omitted twice. Assuming that the year 2 year-end inventory was correct, the net effect on the year 2 net income was that:
 - a. Year 1 net income was understated, and year 2 ending inventory was correct.
 - b. Year 1 cost of goods sold was overstated, and year 2 income was understated.
 - c. Year 1 income was understated, and year 2 ending inventory was overstated.
 - d. Year 1 cost of goods sold was understated, and year 2 net income earnings was understated.
3. The following HCL Corporation inventory information is available for the year ended December 31:

| | Cost | Retail |
|----------------------------|----------|-----------|
| Beginning inventory at 1/1 | \$35,000 | \$100,000 |
| Net purchases | 35,000 | 110,000 |
| Net markups | | 15,000 |
| Sales markdowns | | 35,000 |
| Sales | | 50,000 |

The December 31 ending inventory at retail using the conventional (lower of average cost or retail) retail inventory method equals:

- a. \$1,500
- b. \$20,000
- c. \$27,500
- d. \$50,000

E 9-26

Purchase commitments
(Based on Appendix 9)

LO4

On October 6, 2006, the Elgin Corporation signed a purchase commitment to purchase inventory \$60,000 on or before March 31, 2007. The company's fiscal year-end is December 31. The contract was obtained on March 21, 2007, and the inventory was purchased for cash at the contract price. On the purchase date of March 21, the market price of the inventory was \$54,000. The market price of the inventory on December 31, 2006, was \$56,000. The company uses a perpetual inventory system.

Required:

1. Prepare the necessary adjusting journal entry (if any is required) on December 31, 2006.
2. Prepare the journal entry to record the purchase on March 21, 2007.

E 9-27

Purchase commitments
(Based on Appendix 9)

LO4

In March 2006, the Phillips Tool Company signed two purchase commitments. The first commitment requires Phillips to purchase 500 tools for \$100 each by June 30, 2006. The second commitment requires Phillips to purchase 1,000 tools for \$100 each by August 31, 2006. The company's fiscal year-end is June 30.

The first commitment was exercised on June 30, 2006, when the market price of the 500 tools purchased was \$90. The second commitment was exercised on August 31, 2006, when the market price of the 1,000 tools purchased was \$110.

Required:

Prepare the journal entries necessary on June 30 and August 31, 2006, to account for the purchase commitments. Assume that the market price of the inventory related to the outstanding purchase commitment was \$100,000 on June 30.

PROBLEMS

An alternate exercise and problems set is available on the text website www.mhhe.com/hopackland4e

P 9-1

Lower of cost or
market

LO 1



Decker Company has five products in its inventory. Information about the December 31, 2006, inventory follows:

| Product | Quantity | Unit Cost | Unit Replacement Cost | Unit Selling Price |
|---------|----------|-----------|-----------------------|--------------------|
| A | 400 | \$ 0 | \$ 2 | \$ 6 |
| B | 500 | 5 | | 10 |
| C | 600 | 3 | 2 | 8 |
| D | 200 | | 4 | 6 |
| E | 300 | 4 | 7 | 3 |

The selling cost for each product consists of a 5 percent sales commission. The normal profit percentage for each product is 40 percent of the selling price.

Required:

- Determine the balance sheet inventory carrying value at December 31, 2006, assuming the LCM rule is applied to individual products.
- Determine the balance sheet inventory carrying value at December 31, 2006, assuming the LCM rule is applied to the entire inventory. Also, assuming that Decker recognizes an inventory write-down as a separate income statement item, determine the amount of the loss.

P 9-2

Lower of cost or
market

LO 1

Alphabet Hardware Store sells two distinct types of products: tools and paint products. Information pertaining to its 2006 year-end inventory is as follows:

| Inventory by Product Type | Quantity | Per Unit Cost | Designated Market |
|---------------------------|----------|---------------|-------------------|
| Tools | | | |
| Hammer | 100 | \$ 5.00 | \$5.50 |
| Saw | 200 | 10.00 | 9.00 |
| Screwdriver | 300 | 2.00 | 2.60 |
| Paint products | | | |
| 1-gallon cans | 500 | 4.00 | 5.00 |
| Paint brushes | 100 | 4.00 | 4.50 |

Required:

- Determine the balance sheet inventory carrying value at year-end assuming the LCM rule is applied to (a) individual products, (b) product type, and (c) total inventory.
- Assuming that the company recognizes an inventory write-down as a separate income statement item, for each of the LCM applications determine the amount of the loss.

P 9-3

Lower of cost or
market

Savitz Distributors, Inc., supplies ice cream shops with various toppings for making novelties. On November 17, 2006, a fire resulted in the loss of all of the toppings stored in one section of the warehouse. The company must provide its insurance company with an estimate of the amount of inventory lost. The following information is available from the company's accounting records:

| | Fruit Toppings | Marschmallow Toppings | Chocolate Toppings |
|--------------------------------|----------------|-----------------------|--------------------|
| Inventory January 1, 2006 | \$ 20,000 | \$ 7,000 | \$ 3,000 |
| Net purchases through Nov. 17 | 150,000 | 35,000 | 12,000 |
| Net sales through Nov. 17 | 200,000 | 35,000 | 20,000 |
| Historical gross profit ratios | 25% | 30% | 35% |

Required:

- Calculate the estimated cost of each of the toppings lost in the fire.
- What factors could cause the estimates to be over- or understated?

P 9-4
Retail inventory
method; various cost
methods

LO3 LO4

P 9-5
Retail inventory
method; conventional
and LIFO

LO3 LO4

Excel

P 9-6
Retail inventory
method

LO3 LO4

Excel

Sparrow Company uses the retail inventory method to estimate ending inventory and cost of goods sold. Data for 2006 are as follows:

| | Cost | Retail |
|---------------------|-----------|-----------|
| Beginning inventory | \$ 90,000 | \$190,000 |
| Purchases | 365,000 | 580,000 |
| Freight-in | 9,000 | |
| Purchase returns | 7,000 | 15,000 |
| Net markups | | 16,000 |
| Net markdowns | | 12,000 |
| Normal spoilage | | 3,000 |
| Abnormal spoilage | 4,000 | 8,000 |
| Sales | | \$400,000 |
| Sales returns | | 10,000 |

The company records sales net of employee discounts. Discounts for 2006 totaled \$4,000.

Required:

Estimate Sparrow's ending inventory and cost of goods sold for the year using the retail inventory method and the following applications:

1. Average cost

2. Conventional average LCM

Alpha Company uses the retail method to estimate ending inventory. Selected information about its 2006 operations is as follows:

- January 1, 2006, beginning inventory had a cost of \$ 90,000 and a retail value of \$290,000.
- Purchases during 2006 cost \$ 367,000 with an original retail value of \$2,000,000.
- Freight costs were \$10,000 for incoming merchandise and \$25,000 for outgoing (sold) goods.
- Net additional markups were \$300,000 and net markdowns were \$130,000.
- Based on prior experience, shrinkage due to shoplifting was estimated to be \$15,000 of retail value. Merchandise is sold to employees at a 75% of selling price discount. Employee sales are recorded separate accounts at the net selling price. The balance in this account at the end of 2006 is \$25,000.
- Sales to customers totaled \$ 750,000 for the year.

Required:

- Estimate ending inventory and cost of goods sold using the conventional retail method (average cost).
- Estimate ending inventory and cost of goods sold using the LIFO retail method (Average cost).

Grand Department Store, Inc., uses the retail inventory method to estimate ending inventory for its 2006 financial statements. The following data pertain to a single department for the month of October 2006:

| | |
|---|-----------|
| Inventory, October 1, 2006: | |
| At cost | \$ 20,000 |
| At retail | 80,000 |
| Purchases less effect of freight and returns: | |
| At cost | 190,250 |
| At retail | 146,495 |
| Freight in | 5,000 |
| Purchase returns: | |
| At cost | 2,000 |
| At retail | 6,000 |
| Additional markups | 2,300 |
| Markup cancellations | 865 |
| Markdowns (net) | 800 |
| Normal spoilage and breakage | 4,500 |
| Shrink | 35,730 |

Required:

- Using the conventional retail method, prepare a schedule computing estimated lower-of-cost-or-market inventory for October 31, 2006.
- A department store using the conventional retail inventory method estimates the cost of its ending inventory as \$29,000. An accurate physical count reveals only \$22,600 of inventory at lower-of-cost-or-market. List the factors that may have caused the difference between computed inventory and physical count.

ABC Learning

Smith-Kline Company maintains inventory records at selling prices as well as at cost. For 2006, the records indicate the following data:

(\$ in 000s)

| | Cost | Retail |
|-------------------------|-------|--------|
| Beginning inventory | \$ 80 | \$ 25 |
| Purchases | 671 | 1,004 |
| Freight in on purchases | 30 | |
| Purchase returns | 1 | 2 |
| Net markups | | 4 |
| Net markdowns | | 8 |
| Net sales | | 916 |

Required:

1. Use the retail method to approximate cost of ending inventory in each of the following ways.

a. Average cost

2. Average LIFO cost

[This is a variation of the previous problem, modified to focus on the dollar-value LIFO retail method.]

Smith-Kline Company maintains inventory records at selling prices as well as at cost. For 2006, the records indicate the following data:

(\$ in 000s)

| | Cost | Retail |
|-------------------------|-------|--------|
| Beginning inventory | \$ 80 | \$ 25 |
| Purchases | 671 | 1,004 |
| Freight in on purchases | 30 | |
| Purchase returns | 1 | 2 |
| Net markups | | 4 |
| Net markdowns | | 8 |
| Net sales | | 916 |

Required:

1. Assuming the price level increased from 1.00 at January 1 to 1.10 at December 31, 2006, use the dollar-value LIFO retail method to approximate cost of ending inventory and cost of goods sold.

2. On January 1, 2006, HUCK Camera Store adopted the dollar-value LIFO retail inventory method. Inventory transactions at both cost and retail, and cost indexes for 2006 and 2007 are as follows:

| | 2006 | | 2007 | |
|--|----------|-----------|---------|----------|
| | Cost | Retail | Cost | Retail |
| Beginning inventory | \$28,000 | \$ 40,000 | \$0,000 | \$14,000 |
| Net purchases | 85,000 | 108,000 | 90,000 | 114,000 |
| Freight-in | 2,000 | | 2,500 | |
| Net markups | | 10,000 | | 8,000 |
| Net markdowns | | 2,000 | | 2,200 |
| Net sales to customers | | 100,000 | | 104,000 |
| Sales to employees (net of 20% discount) | | 2,400 | | 4,000 |
| Price index: | | | | |
| January 1, 2006 | | 1.00 | | |
| December 31, 2006 | | 1.06 | | |
| December 31, 2007 | | 1.10 | | |

Required:

1. Estimate the 2006 and 2007 ending inventory and cost of goods sold using the dollar-value LIFO retail inventory method.

2. Raleigh Department Store converted from the conventional retail method to the LIFO retail method on January 1, 2004, and is now considering converting to the dollar-value LIFO retail inventory method. Management requested, during your examination of the financial statements for the year ended December 31, 2006, that you furnish a summary showing certain computations of inventory costs for the past three years. Available information follows:

- The inventory at January 1, 2004, had a retail value of \$45,000 and a cost of \$27,300 based on the conventional retail method.
- Transactions during 2004 were as follows:

1. LIFO method
2. Average cost and LIFO

3. LIFO

4. LIFO retail
5. LIFO

6. LIFO retail
7. LIFO retail
8. LIFO

9. Inventory
10. Various
11. Reduction

12. LIFO retail

Excel

| | Cost | Retail |
|--------------------|-----------|-----------|
| Gross purchases | \$284,000 | \$492,000 |
| Purchases returns | 0 | 10,000 |
| Freight discounts | 5,000 | |
| Gross sales | | 492,000 |
| Sales returns | | 5,000 |
| Employee discounts | | 2,000 |
| Freight in | 20,000 | |
| Net purchases | | 475,000 |
| Net markdowns | | 10,000 |

Sales to employees are recorded net of discounts.

- The retail value of the December 31, 2005, inventory was \$26,000; the cost-to-retail percentage in 2005 under the LIFO retail method was 65%, and the appropriate price index was 102% of the actual 1, 2005, price level.
- The retail value of the December 31, 2006, inventory was \$48,000; the cost-to-retail percentage in 2006 under the LIFO retail method was 65%, and the appropriate price index was 103% of the actual 1, 2006, price level.

Required:

- Prepare a schedule showing the computation of the cost of inventory at December 31, 2006, based on the conventional retail method.
- Prepare a similar schedule as in requirement 1, based on the LIFO retail method.
- State requirements 1 and 2 for December 31, 2005 and 2006, based on the dollar-value LIFO retail method.

AUCPA adapted

P 9-11

Change in methods

LO6

Rickwell Corporation uses a periodic inventory system and has used the FIFO cost method since inception of the company in 1974. In 2006, the company decided to switch to the average cost method. Data for the year are as follows:

| | | |
|--|-----------|------------------|
| Beginning inventory, FIFO (5,000 units @ \$30) | | \$150,000 |
| Purchases: | | |
| 3,000 units @ \$36 | \$108,000 | |
| 4,000 units @ \$40 | 160,000 | 368,000 |
| Cost of goods available for sale | | <u>\$638,000</u> |
| Sales for 2006 (8,000 units @ \$71) | | <u>\$568,000</u> |

- The company's effective inventory unit rate is 40% for all years.
- The company had used the average cost method prior to 2006; ending inventory for 2005 would have been \$30,000.
- 7,000 units remained in inventory at the end of 2006.

Required:

- Ignoring income taxes, prepare the 2006 journal entry to adjust the accounts to reflect the average cost method.
- What is the effect of the change in methods on 2006 net income?

P 9-12

Inventory errors

LO7

You have been hired as the new controller for the Kulkarni Company. Shortly after joining the company in 2006, you discover the following errors related to the 2004 and 2005 financial statements:

- Inventory at 12/31/04 was understated by \$6,000.
- Inventory at 12/31/05 was overstated by \$4,000.
- On 12/31/05, inventory was purchased for \$30,000. The company did not record the purchase until the inventory was paid for early in 2006. At that time, the purchase was recorded by a debit to purchases and a credit to cash.

The company uses a periodic inventory system.

Required:

- Assuming that the errors were discovered after the 2005 financial statements were issued, analyze the effect of the errors on 2005 and 2004 cost of goods sold, net income, and retained earnings (ignore income taxes).
- Prepare a journal entry to correct the errors.
- What other steps would be taken in connection with the errors?

P 9-13

Inventory errors

LO7

The December 31, 2006, inventory of Toy Company, based on a physical count, was determined to be \$430,000. Included in that count was a shipment of goods that cost \$50,000 purchased from a supplier on credit at the month-end. The purchase was recorded and paid for in 2007. Another supplier shipment from

\$20,000 was correctly recorded as a purchase in 2006. However, the merchandise, charged FOB shipping point, was not received until 2007 and was incorrectly omitted from the physical count. A third purchase shipped from a supplier FOB shipping point on December 28, 2006, did not arrive until January 3, 2007. The merchandise, which cost \$80,000, was not included in the physical count and the purchase has not yet been recorded.

The company uses a periodic inventory system.

Required:

1. Assuming the correct December 31, 2006, inventory balance and, assuming that the errors were discovered after the 2006 financial statements were issued, analyze the effect of the errors on 2006 cost of goods sold, net income, and ending equity (ignore income taxes).

2. Prepare a journal entry to correct the errors.

In November 2006, the Brunswick Company signed two purchase commitments. The first commitment requires Brunswick to purchase 10,000 units of inventory at \$10 per unit by December 15, 2006. The second commitment requires the company to purchase 20,000 units of inventory at \$5 per unit by March 15, 2007. Brunswick's fiscal year ends on December 31. The company uses a periodic inventory system. Both contracts were exercised on their expiration date.

Required:

1. Prepare the journal entry to record the December 15 purchase for each assuming the following alternative unit market prices on that date:

- a. \$10.50
- b. \$9.50

Prepare any necessary adjusting entry on December 31, 2006, for the second purchase commitment assuming the following alternative unit market prices on that date:

- a. \$5.50
- b. \$4.50

2. Assuming that the unit market price on December 31 was \$10.30, prepare the journal entry to record the purchase on March 15, 2007, assuming the following alternative unit market prices on that date:

- a. \$5.50
- b. \$4.00

P 9-14

Purchase commitments
(Used for Appendix 9)

9-10*

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Case 9-15
Inventory costs,
lower-of-cost-or-market,
and physical inventory
count

LO 9-1, 9-2

Hudson Company, which is both a wholesaler and a retailer, purchases its inventories from various suppliers. Additional facts for Hudson's wholesale operations are as follows:

- a. Hudson incurs substantial warehousing costs.
- b. Hudson uses the lower-of-cost-or-market method. The replacement cost of the inventories is below the net realizable value and above the net realizable value less the normal profit margin. The original cost of the inventories is above replacement cost and below the net realizable value.

Additional facts for Hudson's retail operations are as follows:

- a. Hudson determines the estimated cost of its ending inventories held for sale at retail using the conventional retail inventory method, which approximates lower of average cost or market.
- b. Hudson incurs substantial freight-in costs.
- c. Hudson has net markups and net markdowns.

Required:

1. Theoretically, how should Hudson account for the warehousing costs related to its wholesale operations? Why?
2.
 - a. In general, why is the lower-of-cost-or-market method used to value inventory?
 - b. At which amount should Hudson's wholesale inventories be reported in the balance sheet? Explain the application of the lower-of-cost-or-market method in this situation.
3. In the calculation of the cost-to-retail percentage used to determine the estimated cost of its ending retail inventories, how should Hudson treat:

- a. Freight-in or not?
- b. Net markups?
- c. Net markdowns?
- d. Why does Hudson's retail inventory method approximate lower of average cost or market?

AACSB: Analyze

Communication
Critical Thinking
Lower of cost or market

• LO1

The lower-of-cost-or-market approach to valuing inventory is a departure from the accounting principle of reporting assets at their historical costs. There are those who believe that inventory, as well as other assets, should be valued in markets, regardless of whether market is above or below cost.

The focus of this case is the justification for the lower-of-cost-or-market rule for valuing inventory. Your instructor will divide the class into two or six groups depending on the size of the class. The role of your group is to defend the lower-of-cost-or-market approach against the alternatives of valuing inventory at either historical cost or market value.

Requirements

1. Each group member should consider the question independently and draft a tentative argument prior to the class session for which the case is assigned.
2. In class, each group will meet for 10 or 15 minutes to discuss issues of the class session. During the meeting, group members will take turns sharing their suggestions for the purpose of arriving at a group argument.
3. After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group in a consensus approach to the situation.

For questions 9-11, assume Case 9-3 Unit LIFO and LCM.

• LO1

York Co. sells one product, which it purchases from various suppliers. York's trial balance at December 31, 2006, included the following accounts:

| | |
|-------------------------------|-----------|
| Sales (33,000 units @ \$3.25) | \$107,250 |
| Sales discounts | 7,500 |
| Purchases | 366,900 |
| Purchase discounts | 16,000 |
| Freight-in | 5,000 |
| Freight-out | 11,000 |

York Co.'s inventory purchases during 2006 were as follows:

| | Units | Cost per Unit | Total Cost |
|---------------------------------------|---------------|---------------|------------------|
| Beginning Inventory | 8,000 | \$8.20 | \$65,600 |
| Purchases, quarter ended March 31 | 12,000 | 8.25 | 99,000 |
| Purchases, quarter ended June 30 | 15,000 | 7.90 | 118,500 |
| Purchases, quarter ended September 30 | 23,000 | 7.50 | 172,500 |
| Purchases, quarter ended December 31 | 7,000 | 7.25 | 50,750 |
| | <u>55,000</u> | | <u>\$406,350</u> |

Assume the following:

- a. York Co. is using LIFO as its inventory method in its financial statements at the end of the year and applies it when computing Cost of Goods Sold under the last-in, first-out (LIFO) method.
- b. York has determined that its beginning 2006 inventory replacement cost of its inventory was \$9.00 per unit and the net realizable value was \$9.80 per unit. York's reported profit margin is \$1.05 per unit.

Required:

1. Prepare York's schedule of cost of goods sold, with a supporting schedule of ending inventory, using the direct method of reporting losses from market decline of inventory.
2. Explain the role of lower of cost or market and its application in this situation.

AACSB: Analyze

For questions 12-14, assume Case 9-3. The dollar-value LIFO method, the retail inventory method.

• LO1

Huddle Company, which is both a wholesaler and retailer, purchases merchandise from various suppliers. The dollar-value (LIFO) method is used for the wholesale inventories.

Huddle determines the estimated cost of its retail ending inventories using the conventional retail inventory method, which approximates lower of average cost or market.

Required:

1. a. What are the advantages of using the dollar-value LIFO method as opposed to the retail LIFO method?
b. How does the application of the dollar-value LIFO method differ from the application of the conventional LIFO method?

2. a. In the calculation of the cost-to-retail percentage used to determine the estimated cost of an ending inventory, how should the following be treated?
 - Net markups
 - Net markdowns

b. Why does LIFO/LA result in a lower method approximate lower of average cost or market?

(AICPA adapted)

The Bready Palm Company, your class, manufactures palm. The company's president, Mr. Bready, decided to open a retail store to sell palm as well as alligator and other items that would be purchased from other suppliers. He has asked you for information about the retail method of valuing inventories in the retail store.

Required

Prepare a report to the president explaining the retail method of estimating inventories.

Generally accepted accounting principles should be applied consistently from period to period. However, changes within a company, as well as changes in the external economic environment, may force a company to change an accounting method. The specific reporting requirements when a company changes from one generally accepted inventory method to another depend on the methods involved.

Required

Explain the accounting treatment for a change in inventory method: (a) not involving LIFO, (b) from the LIFO method, and (c) to the LIFO method. Explain the logic underlying these treatments. Also, describe how disclosure requirements are designed to address the departure from consistency and comparability of changes in accounting principle.

On January 6, 2007, Pennequin-Chrysler State Company made the following announcement:

February 16, 2007 — Pennequin-Chrysler State Company (NYSE: PZ) announced today that it has changed its inventory costing method from weighted, first-in, first-out (FIFO) to moving average cost for all products previously on the FIFO method. The new method is expected to provide a better matching of raw material costs to product selling prices, producing a more accurate measure of operating results for the Company's business.

The change will impact the Company's historical reported earnings. Accounting earnings per share are expected to be reduced in 2006 from \$0.44 to \$0.34 cents from 48 cents, increased in 2007 to \$0.44 cents from 49 cents, and increased in the first nine months of 2008 by a total of 17 cents.

Required

1. Why does GAAP require Pennequin-Chrysler State to retroactively adjust historical reported earnings for this type of accounting change?
2. Assuming that the quantity of inventory remained stable during the first nine months of 2006, did the cost of Pennequin-Chrysler State's inventory move up or down during that period?

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, and forwarding of documents by computers and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings (Some foreign companies file voluntarily.) Form 10-K or 10-Q's, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available to the investor.

Required

1. Access EDGAR on the Internet. The web address is www.sec.gov/edgar/sec Edgar.htm, www.edgar.com, or www.fishbase.org. Follow the process of accessing data from EDGAR.
2. Search for Eagle Supply Group, Inc. Access the 10-K filing for the fiscal year ended June 30, 2003. Search for the inventory method and required notes.
3. Answer the following questions related to the company's inventory:
 - a. Describe the change made in the company's method of accounting for inventories.
 - b. What was the effect of the change on retained earnings as of July 1, 2003?
 - c. What was the effect of the change on 2003's previously reported net income?

May 6th Department Stores, Inc. operates over 30 retail stores in the Pacific Northwest. Prior to 2006, the company used the FIFO method to value its inventory. In 2006, May 6th decided to switch to the dollar value LIFO retail inventory method. One of your responsibilities as assistant controller is to prepare the disclosure note describing the change in method that will be included in the company's 2006 financial statements. Kenneth Meier, the controller, provided the following information:

- a. Internally developed retail price indexes are used to adjust for the effects of changing prices.
- b. If the change had not been made, cost of goods sold for the year would have been \$22 million less. The company's income tax rate is 40% and there were 10 million shares of common stock outstanding during 2006.
- c. The cumulative effect of the change on prior years' income is not determinable.
- d. The reasons for the change were (a) to provide a more consistent matching of merchandise costs with sales revenue, and (b) the new method provides a more comparable basis of accounting competitors that also use the FIFO method.

Required:

1. Prepare for Kenneth Meyer the disclosure note that will be included in the 2006 financial statements.
2. Explain why the "retrospective effect of the change on prior years' income is not determinable."

Problem Case 9-1
Inventory errors

LO

Some inventory errors are said to be self-correcting in that the error has the opposite financial statement effect in the period following the error thereby "correcting" the original accounts balance error.

Required:

Despite this self-correcting feature, discuss why these errors should not be ignored and describe the steps required to account for the error correction.

Problem Case 9-11
Overstatement of ending inventory

LO

Denville Bottles is a wholesale beverage company. Denville uses the FIFO inventory method to determine the cost of its ending inventory. Ending inventory quantities are determined by a physical count. For the fiscal year ended June 30, 2006, ending inventory was originally determined to be \$1,265,000. However, on 17 July 2006, John Howard, the company's controller, discovered an error in the ending inventory count. He determined that the correct ending inventory amount should be \$2,630,000.

Denville is a privately owned corporation with significant financing provided by a local bank. The bank requires annual audited financial statements as a condition of the loan. By July 17, the auditors had not released their review of the financial statements, which are scheduled to be issued on July 25. They did not discover the inventory error.

John's first reaction was, as common sense has it, to find out the auditors and to revise the financial statements before they are issued. However, he knows that his and his fellow workers' profit-sharing plans are based on annual pretax earnings and that if he revises the statements, everyone's profit-sharing bonus will be significantly reduced.

Required:

1. Why will bonuses be negatively affected? What is the effect on pretax earnings?
2. If the error is not corrected in the current year and is discovered by the auditors during the following year's audit, how will it be reported in the company's financial statements?
3. Discuss the ethical dilemma John Howard faces.

Problem Case 9-12
Purchase commitments
(Based on Appendix 9)

LO

The management of the Esquire Oil Company believes that the wholesale price of heating oil that they sell to homeowners will increase again as the result of unresolved political problems in the Middle East. The company is currently paying \$1.50 a gallon. If they are willing to enter an agreement in November 2006 to purchase a million gallons of heating oil during the winter of 2007, their supplier will guarantee the price at \$1.80 per gallon. However, if the winter is a mild one, Esquire would not be able to sell a million gallons, or less; they reduced their retail price and thereby increase the risk of a loss for the year. On the other hand, if the wholesale price did increase substantially, they would be in a favorable position with respect to the competition. The company's fiscal year ends on December 31.

Required:

Discuss the accounting issues related to the purchase commitment that Esquire is considering.

CPA SIMULATION 9-4

Central Engines
Inventory Pricing
Methods

KAPLAN
CPA Review

Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulation on our website: www.mhhe.com/cpa/simulation

The Central Engines simulation tests your knowledge of (a) the differential effects on financial statements of the various inventory costing methods, the difference between the gross and net method of accounting for purchase discounts, and LIFO liquidation that you studied in Chapter 8 and (b) the lower-of-cost-or-market approach to valuing inventory covered in this chapter.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and horizontal accounting standards to conduct research, derive solutions, and communicate conclusions. As to these issues is a simulated environment headed by the following interactive tabs:



Specific tasks in the simulation address:

- Demonstrating your knowledge of the effect on inventory and cost of goods sold of using different cost flow assumptions
- Understanding the implications of using LIFO versus FIFO to value inventory
- Analyzing the effects of differing cost flow assumptions on numerous financial statement elements
- Understanding the differences between the gross and net method of accounting for purchase discounts
- Communicating the effect of a LIFO liquidation on financial statements
- Researching the application of the lower-of-cost-or-market approach to valuing inventory.

CPA SIMULATION 9-2

Ohio Valley Pet
Company
2010-11



Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by assessing your CPA readiness at the test website: www.nahbe.com/cpa-exam

The Ohio Valley Pet Company simulation tests your knowledge of (a) the costs to be included in inventory and the inventory turnover ratio addressed in Chapter 9, (b) the application of the lower-of-cost-or-market approach to valuing inventory, inventory estimation techniques, and inventory errors covered in this chapter, and (c) accounting for purchase discounts covered in the Appendix to this chapter.

As an the CPA exam user, you will be asked to use tools including a spreadsheet, a calculator, and professional accounting standards, to conduct research, derive solutions, and communicate conclusions related to these issues in a simulated environment created by the following interactive tabs:



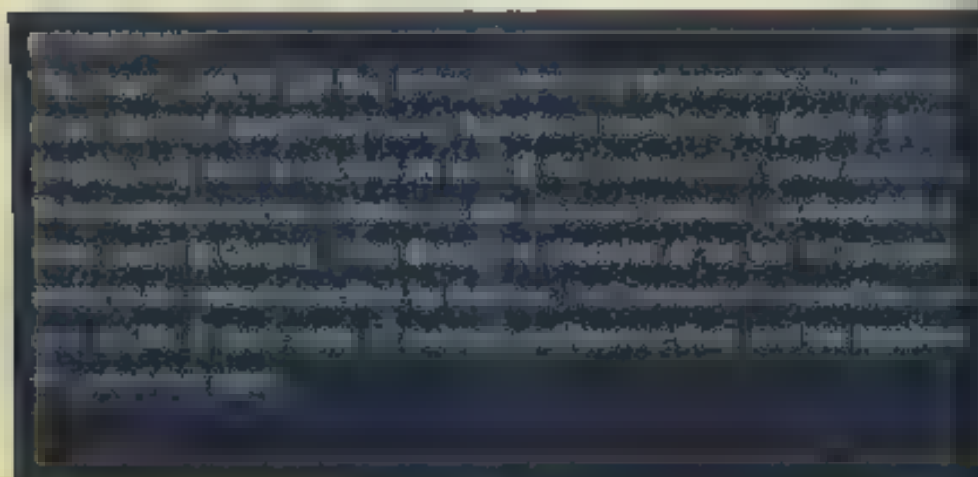
Specific tasks in the simulation address:

- Determining whether or not certain costs should be included in inventory
- Analyzing the effect of various transactions on the inventory turnover ratio
- Applying the lower-of-cost-or-market approach to valuing inventory
- Understanding the retail inventory method and the gross profit method used for estimating ending inventory
- Communicating the effects of inventory errors on financial statement elements
- Researching how to report an unusual loss on an outstanding purchase commitment.

10

CHAPTER

Operational Assets: Acquisition and Disposition



After studying this chapter, you should be able to:

- LO1 Identify the various costs included in the initial cost of property, plant, and equipment, intangible assets, and other intangible assets.
- LO2 Determine the initial cost of individual operational assets acquired as a group for a lump-sum purchase price.
- LO3 Determine the initial cost of an operational asset acquired in exchange for a deferred payment contract.
- LO4 Determine the initial cost of operational assets acquired in exchange for equity securities or through donation.
- LO5 Calculate the fixed asset turnover ratio used by analysts to measure how efficiently managers use property, plant, and equipment.
- LO6 Explain how to account for dispositions and exchanges for other nonmonetary assets.
- LO7 Identify the items included in the cost of a self-constructed asset and determine the amount of capitalized interest.
- LO8 Explain the difference between the initial costs incurred to own intangible assets versus the costs incurred to internally develop intangible assets.

FINANCIAL REPORTING CASE



A Disney Adventure

"Now I'm really confused," confessed Stan, your study partner, staring blankly at the Walt Disney Company balance sheet that your professor handed out last week. "I thought that interest is always expensed in the income statement. Now I see that Disney is capitalizing interest. I'm not even sure what capitalize means. And what about this other account called goodwill? The balance of \$16,456 million in 2004 is unchanged from last year. I thought those kinds of assets lose their value gradually over time. I believe amortization is the correct term." "That's right," you tell Stan. "Amortization is the correct term, and if you hadn't missed class today, we wouldn't be having this conversation. Let's take a look at the Disney financial

statements and the disclosure note on capitalized interest and I'll try to explain it all to you."

Background (in part):

The Company capitalizes interest on assets constructed for its theme parks, resort and other property, and on theatrical and television productions in process. In 2004, 2003, and 2002, total interest capitalized was \$35 million, \$33 million, and \$30 million, respectively.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your responses to the solution provided at the end of the chapter.

QUESTIONS

1. Describe to Stan what it means to capitalize an expenditure. What is the general rule for determining which costs are capitalized when an operational asset is acquired? (page 453)
2. Which costs might be included in the initial cost of equipment? (page 455)
3. In what situations is interest capitalized rather than expensed? (page 471)
4. What is the three-step process used to determine the amount of interest capitalized? (page 472)
5. What is goodwill and how is it measured? Why didn't the amount of goodwill in Disney's 2004 balance sheet change from the prior year? (page 481)

General Motors Corporation has significant investments in the production facilities used to manufacture the automobiles it sells. On the other hand, the principal revenue-producing assets of **Microsoft Corporation** are the copyrights on its computer software that earn the exclusive rights to earn profits from those products. Timber reserves provide future revenues to **Boise Cascade**. From a reporting perspective, we classify GM's production facilities as property, plant, and equipment; Microsoft's copyrights as intangible assets; and the Cascade timber reserves as natural resources. Together, these three noncurrent assets are **operational assets**, a term used to describe the broad category of **long-term, revenue-producing assets**. Unlike manufacturers, many service firms and merchandising companies rely primarily on people or investments in inventories rather than on operational assets to generate revenues. Even nonmanufacturing firms, though, typically have at least modest investments in buildings, equipment, and other operational assets.

The measurement and reporting issues pertaining to this group of assets include valuation at date of acquisition, disposition, the amount of a partnership's share, the use of assets to maintain and improve themselves, and the allocation of costs to reporting periods. Learn from their use and impairment. The allocation of assets to other uses is called **depletion** for natural resources and **amortization** for intangible assets, and **depletion** for natural resources. We discuss initial valuation and disposition in this chapter and subsequent depreciation, cost allocation, and impairment in the next chapter.

PART A VALUATION AT ACQUISITION

Types of Operational Assets

For financial reporting purposes, operational assets typically are classified in two categories:

1. **Property, plant, and equipment.** Assets in this category include land, buildings, equipment, machinery, autos, and trucks. Natural resources such as oil and gas deposits, timber tracts, and mineral deposits also are included.
2. **Intangible assets.** Unlike other operational assets, these lack physical substance; the extent and timing of their future benefits typically are highly uncertain. They include patents, copyrights, trademarks, franchises, and goodwill.

Of course, every company maintains its own unique mix of operational assets. The way these assets are classified and combined for reporting purposes also varies from company to company. As an example, a recent **Tyson Foods, Inc.**, balance sheet reported net property, plant, and equipment of \$3,964 million and \$4,039 million at the end of fiscal 2004 and 2003, respectively. A disclosure note, shown in Graphic 10-1, provided the details.

In practice, some companies report intangibles as part of property, plant, and equipment. Some include intangible assets in the other asset category in the balance sheet, and others show intangibles as a separate balance sheet category. For example, **K-Swiss, Inc.**, manufacturer of an array of athletic footwear, reported intangibles as a separate category in a recent balance sheet:

| Assets (in part): | (\$ in thousands) | |
|-------------------|-------------------|---------|
| | 2004 | 2003 |
| Intangible assets | \$4,700 | \$7,301 |

The disclosure note shown in Graphic 10-2 provided the details.

Before we examine in detail specific operational assets, you should find it helpful to read the overview provided by Graphic 10-3 on page 454.

¹ Tyson also maintains natural plant assets on leased lands.

Property, Plant, and Equipment and Depreciation (in part)

| | 2004 | 2003 |
|--|---------|---------|
| Land | \$ | \$ |
| Buildings and equipment | 297 | 297 |
| Accumulated depreciation | 763 | 886 |
| and improvements and other | 44 | 44 |
| Buildings and equipment under construction | 28 | 77 |
| | 68 | 653 |
| Accumulated depreciation | 2,647 | 2,646 |
| Net property, plant, and equipment* | \$2,601 | \$2,639 |

GRAPHIC 10-1

Property, Plant, and Equipment Tyson Foods Inc.

Intangible Assets (in part)

| | 2004 | 2003 |
|------------------------------|----------|---------|
| Goodwill | \$4,618 | \$4,777 |
| Patents | 7,765 | 5,182 |
| Other | 8 | 8 |
| Net identifiable intangibles | 12,391 | 9,967 |
| | \$12,391 | \$9,967 |

Intangible Assets—
McSeries, Inc.

Costs to Be Capitalized

Operational assets can be acquired through purchase, exchange, lease, donation, self-creation, or a business combination. We address acquisitions brought forward in Chapter 12 and acquisitions through business combinations later in this chapter and in Chapter 12.

The initial valuation of operational assets usually is quite simple. We know from prior chapters that assets are valued on the basis of their **original costs**. In Chapter 4 we introduced the concept of **cost** and now on to determining the **cost** of an asset. This concept applies to the valuation of operational assets as well. The initial cost of an operational asset includes the purchase price and all expenditures necessary to bring the asset to its desired location and location for use.

Our objective in identifying the costs of an asset is to distinguish the expenditures that create future benefits from those that produce benefits only in the current period. The costs in the second group are recorded as expenses, but those in the first group are **capitalized**. That is, they are recorded as an asset and expensed in future periods.²

The distinction is not trivial. This point was unmistakably emphasized in the summer of 2002 when WorldCom, Inc. disclosed that it had improperly capitalized nearly \$4 billion in expenditures related to the company's telecom network. This massive fraud resulted in one of the largest financial statement restatements in history and triggered the collapse of the powerful corporation. Capitalizing rather than expensing these expenditures caused a

LO1

FINANCIAL REPORTING CASE™

Case 10-1

The initial cost of an asset includes the purchase price and all expenditures necessary to bring the asset to its desired location and location for use.

* The net book value of property, plant, and equipment is calculated as follows: Land, \$2,601; Buildings and equipment, \$2,647; Accumulated depreciation, \$(2,647); and Improvements and other, \$44. Total, \$2,601.



Graphic 10-3
Operational Assets and
Their Acquisition Costs

| Asset | Description | How It Derives Its Value | Typical Acquisition Costs |
|--------------------------------|---|--|--|
| Property, plant, and equipment | Productive assets that have both a physical and a useful life. | Its value derives from its use to produce goods or services. | All costs to acquire the asset, including the cost of the land, the cost of the building, and the cost of the equipment. |
| Land | Real property that is used in operations. | Its value derives from its use to produce goods or services. | Purchase price, attorney's fees, title insurance fees, recording fees, commissions, and other costs. |
| Land improvements | Enhancements to the land, such as parking lots, paved roads, fences, and irrigation systems. | Its value derives from its use to produce goods or services. | Separately identifiable costs. |
| Buildings | Structures that are used in operations, such as warehouses, plants, and office buildings. | Its value derives from its use to produce goods or services. | Purchase price, all other costs, and commissions. |
| Natural resources | Productive assets that have a useful life, such as oil, gas, and minerals. | Its value derives from its use to produce goods or services. | All costs to acquire the asset, including the cost of the land, the cost of the building, and the cost of the equipment. |
| Intangible Assets | Productive assets that have no physical form but are useful in operations. | Its value derives from its use to produce goods or services. | All costs to acquire the asset, including the cost of the land, the cost of the building, and the cost of the equipment. |
| Patents | Exclusive rights to manufacture a product. | Its value derives from its use to produce goods or services. | Purchase price, legal fees, and other costs. |
| Copyrights | Exclusive rights to reproduce a work, such as a song, film, painting, or book. | Its value derives from its use to produce goods or services. | Purchase price, legal fees, and other costs. |
| Trademarks and trade names | Exclusive rights to use a symbol, design, or name to identify a product or service. | Its value derives from its use to produce goods or services. | Purchase price, legal fees, and other costs. |
| Franchises | A contract under which one party grants another party the right to use its name or trademark. | Its value derives from its use to produce goods or services. | Purchase price, legal fees, and other costs. |
| Goodwill | The intangible value of a company that is not identifiable as a separate asset. | Its value derives from its use to produce goods or services. | Excess of the purchase price over the fair value of the identifiable intangible assets. |

ILLUSTRATION 1D-2
Initial Cost of Land

The Byers Structural Metal Company purchased a three-acre tract of land and an existing building for \$500,000. The company plans to raze the old building and construct a new office building on the site. In addition to the purchase price, the company made the following expenditures at closing of the purchase:

| | |
|-----------------|----------|
| Title insurance | \$ 3,000 |
| Commissions | 16,000 |
| Property taxes | 6,000 |

Shortly after closing, the company paid a delinquent \$ 5,000 to raze down the old building and remove its debris. A contractor's \$4,000 was used to grade the land. The \$6,000 property taxes included \$4,000 of taxes previously paid by Byers on behalf of the city and \$ 2,000 attributable to the portion of the current fiscal year after the purchase date. What should be the capitalized cost of the land?

Capitalized cost of land:

| | |
|---|------------------|
| Purchase price of land (and building to be razed) | \$500,000 |
| Title insurance | 3,000 |
| Commissions | 16,000 |
| Delinquent property taxes | 4,000 |
| Cost of removing old building | 10,000 |
| Cost of grading | 5,000 |
| Total cost of land | \$538,000 |

Two thousand dollars of the property taxes relate only to the current period and should be expensed. Other costs were necessary to acquire the land and are capitalized.

Cost of Buildings. The cost of acquiring a building usually includes realtor commissions and legal fees in addition to the purchase price. Quite often a building must be refurbished, remodeled, or otherwise modified to suit the needs of the new owner. These remodeling costs are part of the building's acquisition cost. When a building is constructed rather than purchased, unique accounting issues are raised. We discuss those in the "Self-constructed Assets" section of this chapter.

Cost of Natural Resources. Natural resources that provide long-term benefits are reported as property, plant, and equipment. These include timber tracts, mineral deposits, oil and gas deposits. They can be distinguished from other assets by the fact that their benefits are derived from their physical consumption. For example, mineral deposits are physically diminishing as the minerals are extracted from the ground and either sold or used in the production process.² On the contrary, equipment, land, and buildings produce benefits for a company through their use in the production of goods and services. Unlike those of natural resources, their physical characteristics usually remain unchanged during their useful life.

Sometimes a company buys natural resources from another company. In this case, initial valuation is simply the purchase price plus any other costs necessary to bring the asset to condition and location for use. More frequently, though, the company will develop the assets. In this situation, the initial valuation can include (a) acquisition costs, (b) exploration costs, (c) development costs, and (d) restoration costs. Acquisition costs are the amounts paid to acquire the rights to explore for undiscovered natural resources or to extract known natural resources. Exploration costs are expenditures such as drilling a well, or purchasing a mine, or any other costs of searching for natural resources. Development costs are incurred after the resource has been discovered but before production begins. They include a variety of costs such as expenditures for tunnels, wells, and shafts. It is not unusual for the cost of a natural resource, either purchased or developed, also to include estimated restoration costs. These are costs to restore land or other property to its original condition after extraction of the natural resource ends. Because restoration expenditures occur after—

The cost of a natural resource includes the acquisition costs for the use of land, the exploration and development costs incurred before production begins, and restoration costs incurred during or at the end of extraction.

²Source: The Department of Natural Resources, *Exploration and Development*.

ILLUSTRATION 10-3

Cost of Natural Resources

The Jackson Mining Company paid \$1,000,000 for the right to explore for a coal deposit on 500 acres of land in Pennsylvania. Costs for exploring for the coal deposit included \$200,000 for digging and erecting the mine shaft, while the excavation equipment for the project at a cost of \$500,000 will be sold for \$200,000 after the equipment will be sold for the amount of a condition suitable for work after the coal is removed. The company has provided the following three cash flow possibilities for the project over the next five years. A few natural resources

| | Cash Outflow | Probability |
|---|--------------|-------------|
| A | \$500,000 | 30% |
| B | \$600,000 | 50% |
| C | \$700,000 | 20% |

The company's credit-adjusted risk-free interest rate is 8%.
Total capitalized cost for the coal deposit is:

| | |
|-------------------------------|-------------|
| Purchase of rights to explore | \$1,000,000 |
| Exploration costs | 800,000 |
| Development costs | 500,000 |
| Restoration costs | 0 |
| Total cost of coal deposit | \$2,300,000 |

| Year | End of Year | End of Year | End of Year |
|------|-------------|-------------|-------------|
| 1 | 200,000 | 10% | 5% |
| 2 | 300,000 | 20% | 10% |
| 3 | 400,000 | 30% | 15% |
| 4 | 500,000 | 40% | 20% |
| 5 | 600,000 | 50% | 25% |

Journal Entries:

| | |
|---|-----------|
| Cash (determined above) | 2,300,000 |
| Cash (\$200,000 - 800,000 - 500,000) | 2,300,000 |
| Asset retirement liability (determined above) | |
| Exploration equipment | 500,000 |
| Cash paid | 600,000 |

The difference between the asset retirement liability of \$468,360 and the probability-weighted expected cash outflow of \$590,000 is recognized as accretion expense, an amortizing expense, over the three-year amortization period. This process increases the liability to \$590,000 by the end of the excavation period.

| Year | Accretion Expense | Increase in Balance | Asset Retirement Obligation |
|------|-----------------------|---------------------|-----------------------------|
| 1 | 8% (468,360) = 37,469 | 37,469 | 505,829 |
| 2 | 8% (505,829) = 40,466 | 40,466 | 546,295 |
| 3 | 8% (546,295) = 43,705 | 43,705 | 590,000 |

If the actual restoration costs are more (less) than the \$500,000, a loss (gain) on retirement of the obligation is recognized in the difference.

St. Mary Land & Exploration Company is engaged in the exploration, development, acquisition, and production of natural gas and crude oil in 2013. St. Mary adopted the provisions of SFAS No. 143 and, as a result, reported a \$25 million asset retirement liability in its balance sheet. Graphical 10-4 describes the company's adoption and provides a summary of the requirements of the standard.

Companies can either (1) *purchase* intangible assets from other entities (existing user copyright, trademark, or franchise rights) or (2) *develop* intangible assets internally (develop a new product or process that is then patented). In either case, we amortize its cost, less it has an indefinite useful life.¹ Also, just like other operational assets, intangibles are subject to asset impairment rules. We discuss amortization and impairment in Chapter 10. In this chapter, we consider the acquisition cost of intangibles.

The initial valuation of purchased intangibles usually is quite simple. We value a purchased intangible at its original cost, which includes its purchase price and all other costs necessary to bring it to condition and location for intended use. For example, if a company purchases a patent from another entity, it might pay legal fees and filing fees in addition to the purchase price. We value intangible assets acquired in exchange for stock, or for other nonmonetary assets, or with deferred payment contracts exactly as we do other operational assets. Let us look briefly at the costs of purchasing some of the more common intangible assets.

Patents. A patent is an exclusive right to manufacture a product or to use a process. The right is granted by the U.S. Patent Office for a period of 20 years. In essence, the holder of a patent has a monopoly on the use, manufacture, or sale of the product or process. If a patent is purchased from an inventor or another individual or company, the amount paid is its initial valuation. The cost might also include such other costs as legal and filing fees to secure the patent. Holders of patents often need to defend a patent in court against infringement. Any attorney fees and other costs of successfully defending a patent are added to the patent account.

When a patent is *developed internally*, the research and development costs of doing so are expensed as incurred. We discuss research and development in more detail in a later section. We capitalize legal and filing fees to secure the patent, even if internally developed.

Copyrights. A copyright is an exclusive right of protection given to a creator of a published work, such as a song, film, painting, photograph, or book. Copyrights are given by law and give the creator the exclusive right to reproduce and sell the artistic or published work for the life of the creator plus 70 years. Accounting for the costs of copyrights is usually identical to that of patents.

Trademarks. A trademark, also called *tradenam*e, is an exclusive right to use a word, a slogan, a symbol, or an emblem that distinctively identifies a company, a product, or a service. The trademark can be registered with the U.S. Patent Office which prevents other trademark firms from using it for a period of 10 years. The registration can be renewed an indefinite number of 10-year periods, so a trademark is an example of an intangible asset whose useful life could be indefinite.

Trademarks or tradenames often are acquired through a business combination. As an example, in 2012, **Hewlett-Packard Company (HP)** acquired all of the outstanding stock of **Compaq Computer Corporation** for \$24 billion. Of that amount, \$1.4 billion was paid for the Compaq tradename. HP stated in a disclosure note that this “intangible asset” was not amortized because it has an indefinite remaining useful life based on many factors, including the length of time that the Compaq name has been in use, the Compaq brand awareness and market position and the plans for continued use of the Compaq brand within a portion of HP’s overall product portfolio.¹⁰

Trademarks can be very valuable. The estimated value of \$67 billion for the Compaq trademark mentioned previously is a good example. Note that the cost of the trademark reported on the balance sheet is far less than the estimate of its worth to the company. If Coca-Cola Company’s 2004 balance sheet disclosed trademarks at a cost of only \$2 billion,

LT 4-1
Tradenames often are
intangible assets with
indefinite useful lives.

Franchise operations
are a common way of doing
business.

Franchises. A franchise is a contractual arrangement under which the franchisor grants the franchisee the exclusive right to use the franchisor’s trademark or tradename within a geographical area, usually for a specified period of time. Many popular retail businesses, such as fast food outlets, automobile dealerships, and motels are franchises. For example, the time you ordered a hamburger at McDonald’s, you were probably dealing with a franchisee.

¹⁰ *Goodwill and Other Intangible Assets*, Statement of Financial Accounting Standards No. 142 (Norwalk, Conn.: FASB, 2001).

franchise of that McDonald's under paid McDonald's Corporation a fee in exchange for the exclusive right to use the McDonald's name and to sell its products within a specified geographical area. In addition, many franchisors provide other benefits to the franchisee, such as participating in the construction of the retail outlet, training of employees, and national advertising.

Payments to the franchisor usually include an initial payment plus periodic payments over the life of the franchise agreement. The franchisor capitalizes as an intangible asset, franchise, the initial franchise fee plus any legal costs associated with the contract agreement. The costs are amortized over the life of the franchise agreement. The periodic payments usually relate to services provided by the franchisor on a continuing basis and are expensed as incurred.

Most purchased intangibles are *specifically identifiable*. That is, cost can be directly associated with a specific intangible right. An exception is goodwill, which we discuss next.

Goodwill. Goodwill is a unique intangible asset in that its cost can't be directly associated with any specifically identifiable right and it is inseparable from the company itself. It represents the unique value of a company as a whole over and above its identifiable intangible and tangible assets. Goodwill can emerge from a company's clientele and reputation, its loyal employees and management team, its favorable business location, and any other unique features of the company that can't be associated with a specific asset.

Because goodwill can't be separated from a company, it's not possible for a buyer to acquire goodwill without acquiring the whole company. It's a subjective portion of it. Goodwill is first recognized in a balance sheet only when a buyer purchases in connection with the acquisition of another company. In that case, the capital type account equals the purchase price of the company less the fair value of the net assets acquired. The fair value of the net assets acquired is the fair value of all identifiable tangible and intangible assets less the market value of liabilities of the selling company assumed by the buyer. Goodwill is a residual asset. It's the amount left after other assets are identified and valued. Consider Illustration 10-4.

Goodwill can only be purchased through the acquisition of another company.

FINANCIAL REPORTING CASE

CS, p. 431

Goodwill is the excess of the purchase price of a company over the fair value of the net assets acquired.

Smithson Corporation acquired all of the outstanding common stock of the Hider Corporation in exchange for \$18 million cash. Smithson assumed Hider's liabilities and valued them at the date of acquisition. The fair values of Hider's assets are as follows: \$5 million for

common stock of the Hider Corporation, \$7 million for Hider's long-term debt. The fair values of all identifiable

ILLUSTRATION 10-4
Goodwill

| | |
|--------------------------------|-------------|
| Receivables | \$ 5 |
| Inventory | 7 |
| Property, plant, and equipment | 9 |
| Patent | 4 |
| Total | \$25 |

Therefore, the goodwill resulting from the acquisition is \$1 million.

| | |
|--------------------------------|-------------|
| Purchase price | \$18 |
| Less: fair value of net assets | |
| Assets | \$25 |
| Less: liabilities assumed | (12) |
| Goodwill | \$ 1 |

The Smithson Corporation records the acquisition as follows:

| | |
|---|-----------|
| Receivables (fair value) | 5 |
| Inventory (fair value) | 7 |
| Property, plant, and equipment (fair value) | 9 |
| Patent (fair value) | 4 |
| Less: liabilities assumed | |
| Long-term debt (fair value) | 12 |
| 25: purchase price | 18 |

The goodwill resulting from the acquisition is \$1 million. The goodwill is the excess of the purchase price over the fair value of the net assets acquired.

PERSPECTIVE



In the United States, goodwill is capitalized and not amortized. Internationally, the treatment of goodwill varies. Some countries, such as Japan, capitalize and amortize goodwill. *International Financial Reporting Standard 3*, issued in 2004 by the IASB, requires goodwill to be recognized as an asset. As in the United States, goodwill is not amortized and must be tested annually for impairment. Beginning in 2005, publicly traded companies in the European Union and Australia will prepare their consolidated financial statements applying this standard.

ADDITIONAL CONSIDERATION

It is possible for the fair value of net assets to be greater than the purchase price. The fact that the sum of the separate values of the assets is greater than their combined values indicates that bringing them together actually reduced their value. This effect is rare and often is referred to as *negative goodwill*. Some accountants have argued that a negative amount should be disclosed on the balance sheet as a deduction from other assets. GAAP generally requires the similar treatment of recognizing the acquired values at their combined purchase price instead of their individual fair values.

Goodwill, along with other intangible assets with indefinite useful lives, is not amortized.

SFAS 141 requires that in a business

Intangible asset must be recognized as an asset apart from goodwill if it arises from contractual or other legal rights or is identifiable.

Of course, a company can develop its own goodwill through advertising, training, or other efforts. In fact, most do. However, a company must expense all such costs to insure the internal generation of goodwill. By not capitalizing these items, accountants realize the matching principle is violated because many of these expenditures do result in significant future benefits. Also, it is difficult to compare two companies when one has purchased goodwill and the other has not. But imagine how difficult it would be to associate these expenditures with any objective measure of goodwill. In essence, we have a situation where the characteristic of reliability overshadows relevance.

As we discussed in Chapter 1, recent accounting standards have significantly changed the way we account for business combinations. Before these new standards became effective, we amortized (expensed over time) goodwill as well as other intangible assets. In purchasing a business, now just like any other intangible asset, you have indefinite useful lives, and it is not subject to amortization. This makes it imperative that companies make careful, industry-specific judgments of the non-goodwill that they acquire in a business combination since goodwill is the residual to all other assets and liabilities.

In keeping with this goal, SFAS 141 provides guidelines for determining which intangibles should be separately recognized and valued. Specifically, an intangible should be recognized as an asset apart from goodwill if it arises from contractual or other legal rights or is capable of being separated from the acquired entity. Possibilities are patents, trademarks, copyrights, and franchise agreements, and such items as customer lists, license agreements, order backlog, employment contracts, and noncompetition agreements.⁴ In past years, many of these intangibles, if present in a business combination, often were included in the goodwill.⁵

Lump-Sum Purchases

• 102

It is not unusual for a group of operational assets to be acquired for a single sum. If these assets are indistinguishable (for example, 10 identical delivery trucks purchased for a lump sum price of \$50,000), valuation is obvious. Each of the trucks would be valued at $\$50,000 \div 10 = \$5,000$. However, if the lump-sum purchase involves different assets, it is not easy to allocate the lump-sum acquisition price among the separate items. The assets acquired may have different characteristics and different useful lives. For example, in

⁴ However, intangibles that do not arise from contractual or other legal rights are not separately recognized. For example, a company's reputation is not recognized as a separate asset. A well-known service provider's excellent service quality, seen in its superiority from the competition, is a liability.

acquisitions of a factory may include assets that are significantly different such as land, buildings, and equipment.

The allocation is made in proportion to the individual assets' relative market values. This process is best explained by an example in Illustration 10-5.

Jefferson Land & Edge, or LE Company, purchased an entire factory for a single sum of \$2,200,000. The value included is also the fair market value for the manufacturing process, the factory's patent, its equipment, and inventories of raw materials. An independent appraisal established the market values of these assets to be purchased as follows: \$330,000 for land, \$550,000 for buildings, \$660,000 for equipment, \$440,000 for patents, and \$220,000 for inventories. The total purchase price of \$2,200,000 is allocated to the separate assets as follows:

| Market Values | | | | |
|---------------|-------------|-------------|-------------|--|
| | Land | \$ 330,000 | 15% | |
| | Building | 550,000 | 25% | |
| | Equipment | 660,000 | 30% | |
| | Patents | 440,000 | 20% | |
| | Inventories | 220,000 | 10% | |
| | Total | \$2,200,000 | 100% | |
| Allocation | 15% | \$2,200,000 | 330,000 | |
| Building | 25% | \$2,200,000 | 550,000 | |
| Equipment | 30% | \$2,200,000 | 660,000 | |
| Patents | 20% | \$2,200,000 | 440,000 | |
| Inventories | 10% | \$2,200,000 | 220,000 | |
| Total | | | \$2,200,000 | |

Illustration 10-5
Lump-Sum Purchase

The allocation of the purchase price for the lump-sum purchase is proportional to the relative market values of the assets acquired.

The relative market value percentages are multiplied by the lump-sum purchase price to make an initial allocation of costs to the separate assets. However, the building, which is not an operational asset, is not included in the purchase price in a lump-sum acquisition pertaining to operational assets.

The lump-sum purchase price is the value that the lump-sum purchase price is used to allocate the purchase price to the various assets.

ETHICAL DILEMMA

Jefferson Land & Edge Company purchased a factory building. The corporate controller, Don Wilson, is in the process of allocating the lump-sum purchase price between land and building. Don suggests to the company's chief financial officer, Judith Prince, that they manipulate the allocation by allocating a disproportionately higher share of the price to land. Don says that this will reduce depreciation expense, boost income, increase their profit-sharing bonus, and hopefully, increase the price of the company's stock. Judith has some reservations about this because the higher reported income will also cause income taxes to be higher than they would be if a correct allocation of the purchase price is made. What are the ethical issues? Whose stakeholders' interests are in conflict?

Noncash Acquisitions

Companies sometimes acquire operational assets without paying cash but instead by issuing equity securities. The value of the assets is determined by the fair value of the equity securities issued. The first indicator of fair value is the fair value of the assets' debt, or equity securities, given. Sometimes the fair value of the assets received is not clearly evident from the fair value of the assets given.

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• LO3

DEFERRED PAYMENTS

A company can acquire an operational asset by giving the seller a promise to pay cash in the future and thus creating a liability called a note payable. The initial valuation of the asset is again, quite simple as long as the note payable explicitly requires the payment of interest at a realistic interest rate. For example, suppose a machine is acquired for \$15,000 and the buyer signs a note requiring the payment of \$15,000 sometime in the future plus interest in the meantime at a realistic interest rate. The machine would be valued at \$15,000 and the transaction recorded as follows:

| | | |
|--------------|--------|--------|
| Machine | 15,000 | |
| Note payable | | 15,000 |

We know from our discussion of the time value of money in Chapter 6 that most liabilities are valued at the present value of future cash payments, reflecting an appropriate time value of money. As long as the note payable explicitly contains a realistic interest rate, the present value will equal the face value of the note, \$15,000 in our previous example. The value also should be equal to the fair value of the machine purchased. On the other hand, when a interest rate is not specified or is unrealistic, determining the cost of the asset is less straightforward. In that case, the accountant should look beyond the form of the transaction and record its substance. Consider Illustration 10-5.

ILLUSTRATION 10-5

Asset Acquired with Debt: Present Value of Note Indicative of Fair Value

On January 2, 2006, the Midwestern Farm Gas Corporation purchased an industrial furnace. In payment, Midwestern signed a non-interest-bearing note requiring \$50,000 to be paid on December 31, 2007. If Midwestern had borrowed cash to buy the furnace, the bank would have required an interest rate of 10%.

Since the furnace payment is the equivalent of a loan made and bearing interest, the value is at least.

Notice that the company also is owed at the time value of the cash exchanged.

The economic substance of the transaction should prevail over its outward appearance.

On the surface, it might appear that Midwestern is paying \$50,000 for the furnace and its eventual cash payment. However, when you note that the agreement specifies no interest even though the payment won't be made for two years, it becomes obvious that a portion of the \$50,000 payment is not actually payment for the furnace, but instead is interest on the note. At what amount should Midwestern value the furnace and the related note payable?

The answer is fair value, as it is for any noncash transaction. This might be the fair value of the furnace or the fair value of the note. Let's say, in this situation, that the furnace is a turn-built, so its cash price is unavailable. But Midwestern can determine the fair value of the note payable by computing the present value of the cash payments at the appropriate discount rate of 10%. The amount received for the machine, then, is the present value of the cash flows caused—or by the loan agreement—discounted at the market rate—10% in this case.

$$PV = \$50,000 \times 82.615 = \$41,308$$

*Present value of \$1 paid at the end of two years at 10% (from Table 2)

So the furnace should be recorded at its true cost, \$41,323, as follows.¹⁰

| | | |
|---------------------------------------|--------|--------|
| Furnace (determined above) | 41,323 | |
| Discount on note payable (difference) | 8,677 | |
| Note payable (face amount) | | 50,000 |

Notice that the note also is recorded at \$41,323, its present value, but this is accomplished by using a contra account, called *discount on note payable*, for the difference between the

¹⁰The entry shown assumes the note is recorded using the gross method. By the net method, a discount account is not used and the note is simply recorded at present value.

| | | |
|---------------|--------|--------|
| Machine | 41,323 | |
| Notes payable | | 41,323 |

the amount of the note (\$50,000) and its present value (\$41,123). The difference of \$8,677 is the portion of the eventual \$50,000 payment that represents interest and is recognized as interest expense over the life of the note.

Assuming that Midwestern's fiscal year-end is December 31 and that adjusting entries are recorded only at the end of each year, the company would record the following entries at the end of 2006 and 2007 to accrue interest and the payment of the note:

December 31, 2006

| | | |
|------------------------------------|-------|-------|
| Interest expense (\$41,123 × 0.08) | 4,112 | |
| Discount on note payable | | 4,112 |

December 31, 2007

| | | |
|------------------------------------|--------|--------|
| Interest expense (\$51,383 × 0.08) | 4,545 | |
| Discount on note payable | | 4,545 |
| Note payable (face amount) | 50,000 | |
| Cash | | 50,000 |

Note stated interest increases the amount owed by \$4,112.

| Notes payable | |
|---------------|---------|
| at 100% | at 100% |
| 20,000 | 20,000 |
| 20,000 | 20,000 |
| 40,000 | 40,000 |

| Discount on note payable | |
|--------------------------|---------|
| at 100% | at 100% |
| 0 | 0 |
| 4,112 | 4,112 |
| 4,112 | 4,112 |
| 8,224 | 8,224 |

Sometimes, the fair value of an asset acquired in a noncash transaction is readily available from price lists, previous purchases, or otherwise. In that case, this fair value may be more clearly evident than the fair value of the note and it would serve as the best evidence of the exchange value of the transaction. As an example, let's consider Illustration 10-7.

Yearling, a 2006 Denzieson Inc., purchased a machine on January 2, 2006, and signed a noninterest-bearing note that requires the company to pay \$100,000 on December 31, 2006. Yearling is not sure what interest rate appropriately reflects the fair value of money. However, it knows its machine would have been purchased for cash at a price of \$79,383.

Yearling records both the asset and liability at \$79,383 on January 2:

| | | |
|---------------------------------------|--------|---------|
| Machine (cash price) | 79,383 | |
| Discount on note payable (difference) | | 20,617 |
| Note payable (face amount) | | 100,000 |

In this situation, we infer the present value of the note from the fair value of the asset. Again, the difference between the note's \$79,383 present value and the cash payment of \$100,000 represents interest. We can determine the interest rate that is implicit in the agreement as follows:

$$\$79,383 \text{ (present value)} = \$100,000 \text{ (face amount)} \times \text{PV factor}$$

$$\$79,383 \div \$100,000 = .79383$$

$$\text{Present value of } \$100,000 = .79383 \text{ (from Table 2.1) } = 8\%$$

We refer to the 8% rate as the *implicit rate of interest*. Denzieson records interest each year 8% in the same manner as demonstrated in Illustration 10-6 and discussed in greater depth in Chapter 9.

We now turn our attention to the acquisition of operational assets acquired in exchange for equity securities or through donation.

ISSUANCE OF EQUITY SECURITIES

The most common situation in which equity securities are issued for operational assets occurs when small companies incorporate and the owner or owners contribute assets to the new corporation in exchange for ownership securities, usually common stock. Because the companies are not publicly traded, it's difficult to determine their fair value. In that case, the value of the assets received by the corporation is probably the better indicator of the corporation's exchange value. In other situations, particularly those involving corporations whose stock is actively traded, the market value of the shares is the best indication of fair value (see Illustration 10-8).

ILLUSTRATION 10-7

Noninterest-Bearing Note—*a. Value of Asset Is Known*

LO4

Illustration 10-8 Asset Acquired by Issuing Equity Securities

Assume that the company who received at the fair value of the securities received the assets, whichever is greater.

Donated assets are recorded at fair value.

Donated assets are recorded at fair value.

On March 31, 2006, the Farnham Company issued 100 shares of common stock to acquire land. On the date of the transaction, the market value of the common stock was \$24,000, the historical value of the land was \$20,000, and the value of the common stock was \$24,000.

The journal entry to record this transaction is as follows:

If the market value of the common stock is not known, the company should use the historical value of the land and the value of the common stock.

DONATED ASSETS

A corporation can acquire assets through donation. The donation may be an endorsement to do something that benefits the donor. For example, the developer of a residential park might pay some of the costs of building a manufacturing facility to encourage the park's completion. Assets donated by other parties, such as individuals, have more than an intangible market value or an approved value. They should be recorded at the market value of the asset, or the value of the cash contributed, whichever is greater. The company should record the cash contributed and the company using the cash to acquire the asset.

As the recipient records the asset at its fair value, what account receives the offsetting credit? Over the years, there has been disagreement over this question. Should the cash contribution be paid in equity, the market value of the asset, or the value of the cash contributed? The answer is that the donated asset should be recorded at its fair value. SFAS 116 requires that the asset be recorded at its fair value. The company's revenues generally are from the sale of goods, services, or from other activities that constitute the company's ongoing major or central operations. The rationale is that the company receives the asset as a result of its ongoing operations, and the asset should be recorded at its fair value.

Corporations occasionally receive donations from governmental units. A local governmental unit might provide land or pay all or some of the cost of a new office building. For example, the City of San Jose, California, donated a site to the company and the company built a new office building. The company recorded the asset at its fair value, and the company recorded the cost of the building as a liability. However, it is the opinion of the authors that this type of donation should also be accounted for as revenue by the recipient. In the IBM example, the new five-story building, located in downtown San Jose, brought jobs to a revitalized downtown and increased revenues to the city. The City of San Jose did not receive an equity interest in IBM through its donation, but significantly benefited nevertheless.

Illustration 10-9 provides an example. In this illustration, we assume that, even though the donation is from a governmental unit, SFAS 116 guidelines apply.

Illustration 10-9 Asset Donation

IBM Corp. decided to relocate its headquarters to the City of San Jose. The company paid \$20 million for the building. The building was donated to the company by the City of San Jose. The company recorded the building at its fair value, and the company recorded the cost of the building as a liability.

| | |
|----------------------------|------------|
| Building | 20,000,000 |
| Cash | 20,000,000 |
| Revenue (donation of site) | 20,000,000 |

Operational assets also can be acquired in an exchange. Because an exchange transaction inherently involves a disposition of one operational asset as it is given up in exchange for another, we cover these transactions in Part B, Dispositions and Exchanges.

¹ "Accounting for Contributions Received and Contributions Made," Statement of Financial Accounting Standards No. 116, FASB.

DECISION MAKERS' PERSPECTIVE

The operational asset acquisition decision is among the most significant decisions that management must make. A decision to acquire a new fleet of airplanes or to build or purchase a new office building or manufacturing plant could influence a company's performance for several years.

These decisions often referred to as *capital budgeting* decisions require management to estimate future net cash flows (both inflows and outflows) generated by the operational asset. These cash flows are then used to make a decision if the future cash flows are sufficient to warrant the capital expenditure. One technique to determine the present value of future net cash flows is the required initial acquisition cost of the assets. The present value is higher than the acquisition cost of the assets acquired. You have studied or will study capital budgeting in considerable depth in a financial management course. The introduction to the time value of money concept in Chapter 6 provided you with important tools necessary to evaluate capital budgeting decisions.

One ratio to profitability is how well a company manages and utilizes its assets. Financial analysts use activity, or turnover, ratios to evaluate a company's effectiveness in managing its assets. This concept was illustrated with receivables and inventory in previous chapters. Operational assets—particularly property, plant, and equipment (PP&E)—usually are a company's primary revenue-generating assets. Their efficient use is critical to generating a satisfactory return to owners. One ratio analysts often use to measure how effectively managers employ the fixed-asset turnover ratio. This ratio is calculated as follows:

$$\text{Fixed-asset turnover ratio} = \frac{\text{Net sales}}{\text{Average fixed assets}}$$

This ratio indicates the level of sales generated by the company's investment in fixed assets. The denominator usually is the book value (cost less accumulated depreciation and depletion) of property, plant, and equipment.¹²

With other turnover ratios, we can compare a company's fixed-asset turnover with that of competitors, with an industry average, or with the same company's ratio over time. For example, the fixed-asset turnover ratios for Dell and Apple, the same two companies we used in Chapter 7 to illustrate accounts receivable turnover.

(in millions)

| | Dell | | Apple | |
|--------------------------------------|----------|-------|---------|-------|
| | 2004 | 2003 | 2004 | 2003 |
| Property, plant, and equipment (net) | \$1,517 | \$913 | \$707 | \$669 |
| Net sales, 2004 | \$41,444 | | \$8,279 | |

As 2004 fixed-asset turnover for Dell is $34 = \$41,444 \div [(\$1,517 + \$913) \div 2]$ compared with turnover of 12 $[\$8,279 \div [(\$707 + \$669) \div 2]]$, Dell is able to generate nearly three times as much as Apple in sales dollars for each dollar invested in fixed assets. ■



LO5

The fixed-asset turnover ratio measures the efficiency of managing property, plant, and equipment.

DISPOSITIONS AND EXCHANGES

Like other operational assets, companies will sell, retire, or exchange those assets. Accounting for disposals differs somewhat from accounting for sales and retirements because they involve both an acquisition and a disposition. So let's look first at sales and retirements and then at exchanges. Be sure to note that in each case, the companies will record depreciation, depletion, or amortization up to the date of disposition or exchange.

PART B

LO6

¹² Some companies exclude net book value of land from the denominator because a turnover that reflects its impact on the operating results is not appropriate. The U.S. Space Shuttle is an example of an asset that is excluded from these assets.

Dispositions

When selling operational assets for monetary consideration (cash or a receivable), the seller recognizes a gain or loss for the difference between the consideration received and the book value of the asset sold. Illustration 10-11 provides an example.

ILLUSTRATION 10-10

Sale of Operational Asset

Robosport, Inc. is disposing of its old equipment. The equipment was purchased for \$20,000 and has a book value of \$8,000. The company is selling it for \$12,000. The journal entry to record the sale is as follows:

The Robosport, Inc. transaction for \$8,000. Robosport, Inc. originally cost \$20,000. The book value of the equipment is \$8,000. The company is selling it for \$12,000. Since the \$8,000 book value is less than the \$12,000 cash received, the company recognizes a gain of \$4,000. The journal entry to record the sale is as follows:

| | |
|---|--------|
| Cash (selling price) | 12,000 |
| Accumulated depreciation—equipment (book value) | 12,000 |
| Loss on disposal of machinery (difference) | 8,000 |
| Machinery (original cost) | 20,000 |

Retirements (or abandonments) are treated similarly. The only difference is that there will be no monetary consideration received. A loss is recorded for the remaining book value of the asset.

When an operational asset is to be disposed of by sale, we classify it as "held for sale" and report it at the lower of its book value or fair value less any cost to sell.¹⁵ If the fair value less cost to sell is below book value, we recognize an impairment loss. Operational assets classified as held for sale are not depreciated or amortized. Recall from your study of accounting operations in Chapter 4 that this treatment is the same one we employed in accounts receivable. We cover this topic in more depth in the impairment section of Chapter 12.

ADDITIONAL CONSIDERATION

Involuntary Conversions

Occasionally companies dispose of operational assets unintentionally. These so-called involuntary conversions include destruction by fire, earthquake, flood, or other catastrophe and expropriation by a governmental body.

Usually, the company receives a cash settlement from an insurance company for destroyed assets or from the governmental body for expropriated assets. The conversions are treated precisely the same as voluntary conversions. That is, the proceeds are recorded at the book value of the lost assets are removed, and a gain or loss is recognized for the difference.

Exchanges

Sometimes a company will acquire an operational asset in exchange for another operational asset. This frequently involves a trade-in by which a new asset is acquired in exchange for an old asset, and cash is given to equalize the fair values of the assets exchanged. The principle followed in these nonmonetary asset exchanges is to value the asset received at fair value. This can be the fair value of the asset(s) given up or the fair value of the asset(s) received plus (or minus) any cash exchanged. We first look to the fair value of the asset given up. However, in a trade-in, quite often the fair value of the new asset is more than evident than the second-hand value of the asset traded in. A gain or loss is recognized for the

¹⁵ Accounting for the Impairment or Disposal of Long-Lived Assets, "Statement of Financial Accounting Standards No. 144" (FASB, 2001).

¹⁶ Monetary items are assets and liabilities whose amounts are fixed, by contract or otherwise, in terms of a specific number of dollars. Others are nonmonetary.

difference between the fair value of the asset given up and book value (see the example Illustration 10-11).

Acorn Company acquires a laser printer for the new model Acorn Laser printer. The old equipment is \$50,000 less its accumulated depreciation of \$30,000, or book value of \$20,000. The new printer is valued at \$40,000. The difference between the book value of the old equipment and the fair value of the new equipment is \$20,000. We know this because Acorn Company will recognize a gain of \$20,000 on the exchange. The journal entry records the transaction.

| | | |
|------------------------------|--------|--------|
| Dr. equipment—new | 40,000 | |
| Dr. accumulated depreciation | | 40,000 |
| Cr. equipment—old | | 50,000 |
| Cr. cash | | 40,000 |
| Cr. gain | | 20,000 |

The new equipment is recorded at the fair value of the old equipment, \$40,000. The accumulated depreciation is \$40,000. This also equals the fair value of the new assets. The gain of \$20,000 is simply the difference between the old equipment's book value of \$20,000 and its \$40,000 fair value.

ILLUSTRATION 10-11
Nonmonetary Asset Exchange

| | | |
|------------------------------|--------|--------|
| Dr. equipment—new | 40,000 | |
| Dr. accumulated depreciation | | 40,000 |
| Cr. equipment—old | | 50,000 |
| Cr. cash | | 40,000 |
| Cr. gain | | 20,000 |

Initially, the accounting treatment of nonmonetary asset exchanges depended on a number of factors, including whether the assets exchanged were similar or dissimilar, whether cash was given or received, and whether a gain or loss was recognized in the exchange. In 1980, a new accounting standard,¹ simplified accounting for exchanges of operational assets requiring the use of fair value except in rare situations in which the fair value cannot be determined. If the exchange lacks commercial substance, the assets are valued at the book value of the asset given up, as for a disposal, and any cash exchanged is an add-on, and no gain is recognized. This is the case in both of these situations.

FAIR VALUE NOT DETERMINABLE

Sometimes unusual for a company not to be able to reasonably determine fair value in either direction. Acorn Company is a situation in which a company would simply use the book value of the asset given up plus (minus) any cash given (received) to value the asset acquired. For example, if fair value had not been determinable in Illustration 10-11, Acorn would have recorded the exchange as follows:

| | | |
|------------------------------|--------|--------|
| Dr. equipment—new | 50,000 | |
| Dr. accumulated depreciation | | 40,000 |
| Cr. equipment—old | | 50,000 |
| Cr. cash | | 40,000 |

The new equipment is valued at the book value of the old equipment (\$50,000) plus the cash given (\$40,000). No gain is recognized.

| | | |
|------------------------------|--------|--------|
| Dr. equipment—new | 50,000 | |
| Dr. accumulated depreciation | | 40,000 |
| Cr. equipment—old | | 50,000 |
| Cr. cash | | 40,000 |

EXCHANGE LACKS COMMERCIAL SUBSTANCE

If a company exchanges assets at fair value, then a gain or loss is recognized for the difference between the fair value and book value of the assets given up. To preclude the possibility of a company engaging in exchanges of appreciated assets solely to be able to recognize gains, a standard may be used to require that exchanges that lack commercial substance

| | | |
|------------------------------|--------|--------|
| Dr. equipment—new | 50,000 | |
| Dr. accumulated depreciation | | 40,000 |
| Cr. equipment—old | | 50,000 |
| Cr. cash | | 40,000 |

¹ Statement of Financial Accounting Standards No. 25, *Statement of Financial Accounting Standards No. 25*.

² FASB No. 100, 1984.

³ The standard also applies to exchanges of nonmonetary assets, which precludes the use of fair value in a nonmonetary exchange. The new standard also applies to exchanges of nonmonetary assets that are not similar to the assets given up.

A nonmonetary exchange is considered to have commercial substance if the company expects a change in future cash flows as a result of the exchange and (2) that expected change is significant relative to the fair value of the assets exchanged. Otherwise, the exchange does not have commercial substance, book value is used to value the assets acquired, and no gain is recognized.

— CONCEPT REVIEW EXERCISE

EXCHANGES

The MD Corporation recently acquired new equipment to be used in its production process. In exchange, the company traded in an existing asset that had an original cost of \$60,000 and accumulated depreciation on the date of the exchange of \$45,000. In addition, MD paid \$40,000 cash to the equipment manufacturer. The fair value of the old equipment is \$17,000.

Required:

1. Prepare the journal entry MD would use to record the exchange transaction assuming that the transaction has commercial substance.
2. Prepare the journal entry MD would use to record the exchange transaction assuming that the transaction does not have commercial substance.

SOLUTION

1. Prepare the journal entry MD would use to record the exchange transaction assuming that the transaction has commercial substance.

| | | |
|--|--------|--------|
| Equipment—new (\$17,000 + 40,000) | 57,000 | |
| Accumulated depreciation (account balance) | 45,000 | |
| Cash amount paid | | 40,000 |
| Equipment—old (account balance) | | 60,000 |
| Gain (\$17,000 fair value - \$15,000 book value) | | 2,000 |

2. Prepare the journal entry MD would use to record the exchange transaction assuming that the transaction does not have commercial substance.

| | | |
|--|--------|--------|
| Equipment—new (\$15,000 + 40,000) | 55,000 | |
| Accumulated depreciation (account balance) | 45,000 | |
| Cash amount paid | | 40,000 |
| Equipment—old (account balance) | | 60,000 |

PART C

SELF-CONSTRUCTED ASSETS AND RESEARCH AND DEVELOPMENT

Two types of expenditures relating to operational assets whose accounting treatment has generated considerable controversy are interest costs pertaining to self-constructed assets and amounts spent for research and development. We now consider those expenditures and why those controversies have developed.

Self-Constructed Assets

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A company might decide to construct an operational asset for its own use rather than buy an existing one. For example, a retailer like Nordstrom might decide to build its own store rather than purchase an existing building. A manufacturing company like Intel could construct its own manufacturing facility. In fact, Nordstrom and Intel are just two of the companies that self-construct assets. Other recognizable examples include Wal-Mart, Sears, and Caterpillar. Quite often these companies act as the main contractor and then subcontract most of the actual construction work.

The critical accounting issue in these instances is identifying the cost of the self-constructed asset. The task is more difficult than for purchased assets because there are

transaction to establish an exchange price. Actually, two difficulties arise in connection with assigning costs to self-constructed assets: 1. determining the amount of the semi-indirect manufacturing costs (overhead) to be allocated to the construction and 2. determining the proper treatment of interest (actual or imputed) incurred during construction.

OVERHEAD ALLOCATION

When determining cost of goods manufactured for sale, the costs of material and labor usually are easily identified with a particular construction project and are included.

However, the treatment of manufacturing overhead and its allocation between construction projects and normal production is a controversial issue.

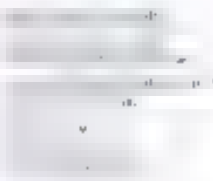
Some accountants advocate the inclusion of only the *incremental* overhead costs in the cost of construction. That is, the asset's cost would include only those additional costs incurred because of the decision to construct the asset. This would exclude such items as depreciation and the salaries of supervisors that would be incurred whether or not the construction project is undertaken. If, however, a new construction supervisor was specifically in work on the project, then this salary would be included in asset cost.

Others advocate assigning overhead on the same basis that is used for a regular manufacturing process. That is, all overhead costs are allocated both to production and to self-constructed assets based on the relative amount of a chosen cost driver (for example, labor hours) incurred. This is known as the *full cost approach* and is the generally accepted method used to determine the cost of a self-constructed asset.

INTEREST CAPITALIZATION

The cost of an asset includes all costs necessary to get the asset ready for its intended use. Unlike one purchased from another company, a self-constructed asset requires time to create it. During this construction period, the project must be financed in some way, raising the question as to whether interest costs during the construction period are one of the costs of acquiring the asset itself or simply costs of financing the asset. On the one hand, we might point to interest charges to finance inventories during their period of manufacture to finance the purchase of plant assets from others and argue that construction-period interest charges are merely costs of financing the asset that should be expensed as like all other interest costs. On the other hand, we might argue that self-constructed assets are unique and that the construction period is an integral part of the asset's life cycle. In this view, interest charges are a cost of obtaining the asset and should be capitalized. The latter view is the one that is generally accepted and is the one that is followed in this text. Interest charges incurred during the construction period are capitalized and then allocated as depreciation during later periods when the assets are providing benefits.

Qualifying Assets. Generally accepted accounting principles are consistent with the latter view. Specifically, interest is capitalized during the construction period for (a) assets built for a company's own use as well as for (b) assets constructed as *discrete projects* or lease a ship or a real estate development, for example. This excludes from interest capitalization consideration inventories that are routinely manufactured in large quantities on a repetitive basis and assets that already are in use or are ready for their intended use. Interest costs incurred during the productive life of the asset are expensed as incurred. So in 1979, when this treatment was mandated by SFAS 34, many corporations reported construction-period interest costs as a cost of obtaining funds, and not a cost of obtaining an asset. Accordingly, interest costs were expensed rather than capitalized. In fact, prior to the late 1970s, few companies other than utilities capitalized interest. Utilities have long been required to do so by the desire to increase their asset bases on which regulated utility rates are based. Nonregulated companies began to follow suit during the economic slow-down of the early 1970s as a way to decrease expenses and increase profits. SFAS 34 was an attempt to address the diversity of accounting practices. Now all companies capitalize interest during the construction of a qualified asset.



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projects qualify for

Only interest incurred during the construction period is eligible for

The interest
 is capitalized
 in the
 period in which
 the expenditure is incurred
 and is not
 capitalized
 in the period in which
 the expenditure is incurred

Average accumulated expenditures
 are calculated
 as follows:
 Total accumulated expenditures
 divided by the number of months
 in the construction period

Average accumulated expenditures
 are calculated
 as follows:
 Total accumulated expenditures
 divided by the number of months
 in the construction period

Illustration 10-12 Interest Capitalization

Period of Capitalization. The capitalization period for a self-constructed asset starts with the first expenditure (materials, labor, or overhead) and ends either when the asset is substantially complete and ready for use or when interest costs no longer are being incurred. Interest costs incurred can pertain to borrowings other than those obtained specifically for the construction project. However, interest costs can be imputed; actual interest costs may be incurred.

Average Accumulated Expenditures. Because we consider interest to be a necessary cost of getting a self-constructed asset ready for use, the amount capitalized is only that portion of interest cost incurred during the construction period that *would have been incurred* if expenditures for the asset had not been made. In other words, if construction had not been undertaken, debt incurred for the project would not have been necessary and/or the interest-bearing debt could have been liquidated or employed elsewhere.

As a result, interest should be determined for only the construction expenditures actually incurred during the capitalization period. And unless all expenditures are made at the end of the period, it's necessary to determine the *average* amount outstanding during the period. This is the amount of debt that would be required to finance the expenditures and thus the amount on which interest would accrue. For instance, if a company accumulated \$1,500,000 of construction expenditures fairly evenly throughout the construction period, the average expenditures would be

| | |
|--|-------------|
| Total accumulated expenditures incurred evenly throughout the period | \$1,500,000 |
| Average accumulated expenditures | \$ 750,000 |

At the beginning of the period, no expenditures have accumulated, so no interest has accrued (on the equivalent amount of debt). But, by the end of the period interest is accrued on the total amount, \$1,500,000. On average, then, interest accrues on half the total, or \$750,000.

If expenditures are not incurred evenly throughout the period, a simple average is insufficient. In that case, a weighted average is determined by time-weighting individual expenditures or groups of expenditures by the number of months from their incurrence to the end of the construction period. This is demonstrated in Illustration 10-12.

On January 1, 2006, the Mifflin Conveyor Equipment Company began construction of a building to be used as its office headquarters. The building was completed on June 30, 2007. Expenditures on the project, mainly payments to subcontractors, were as follows:

| | |
|---|-------------|
| January 3, 2006 | \$ 500,000 |
| March 31, 2006 | 400,000 |
| September 30, 2006 | 600,000 |
| Accumulated expenditures at December 31, 2006
(before interest capitalization) | \$1,500,000 |
| January 31, 2007 | 600,000 |
| April 30, 2007 | 300,000 |

On January 2, 2006, the company obtained a \$1 million construction loan with an 8% interest rate. The loan was outstanding during the entire construction period. The company's other interest-bearing debt included warehouse notes of \$2,000,000 and \$4,000,000 with interest rates of 6% and 12%, respectively. All notes were outstanding during the entire construction period.

FINANCIAL REPORTING CASE

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The weighted-average accumulated expenditures by the end of 2006 are:

| | | |
|---|-----------------|-----------|
| January 3, 2006 | \$500,000 × ¾ = | \$375,000 |
| March 31, 2006 | 400,000 × ⅝ = | 300,000 |
| September 30, 2006 | 600,000 × ⅙ = | 150,000 |
| Average accumulated expenditures for 2006 | = | \$825,000 |

Again, notice that the average accumulated expenditures are less than the total accumulated expenditures of \$1,500,000. If M-Js had borrowed exactly the amount necessary to finance the project, it would not have incurred interest on a loan of \$1,500,000 for the whole year, but only on an average loan of \$950,000. The next step is to determine the interest to be capitalized for the average accumulated expenditures.

Interest Rates. In this situation, debt financing was obtained specifically for the construction project, and the amount borrowed is sufficient to cover the average accumulated expenditures. To determine the interest capitalized, then, we simply multiply the construction rate of 8% by the average accumulated expenditures:

$$\text{Interest capitalized for 2006} = \$950,000 \times 8\% = \$76,000$$

Notice that this is the same answer we would get by assuming separate 8% construction loans were made for each expenditure at the time each expenditure was made!

| Loans | Annual Rate | Portion of Year Outstanding | Interest |
|-------------------------------|-------------|-----------------------------|----------|
| \$500,000 | 8% | $\frac{1}{4}$ | \$40,000 |
| 400,000 | 8% | $\frac{1}{2}$ | 24,000 |
| 600,000 | 8% | $\frac{3}{4}$ | 2,000 |
| Interest capitalized for 2006 | | | \$76,000 |

Interest of \$76,000 is added to the cost of the building, bringing accumulated expenditures at December 31, 2006, to \$1,576,000 (\$1,500,000 + \$76,000). The remaining interest incurred but not capitalized is expensed.

It should be emphasized that interest capitalization does not require that funds actually be borrowed for this specific purpose, only that the company does have outstanding debt. The key point is that even if the company doesn't borrow specifically for the project, funds (whether borrowings) must be directed to finance the construction. Either way—directly or indirectly—when so costs are incurred, as our illustration, for instance, even without the construction loan, interest would be capitalized because other debt was outstanding. The capitalized interest would be the average accumulated expenditures multiplied by the weighted-average rate on these other loans. The weighted-average interest rate on all debt other than the construction loan would be 10%, calculated as follows:¹⁸

| Loans | Rate | Interest |
|--------------------|------|------------------|
| \$2,000,000 | 6% | \$120,000 |
| 4,000,000 | 12% | 480,000 |
| <u>\$6,000,000</u> | | <u>\$600,000</u> |

$$\text{Weighted-average rate} = \frac{\$600,000}{\$6,000,000} = 10\%$$

It's a weighted average because total interest is \$600,000 on total debt of \$6,000,000.

ADDITIONAL CONSIDERATION

The weighted-average rate isn't used for 2006 in our illustration because the specific construction loan is sufficient to cover the average accumulated expenditures. If the construction loan had been insufficient to cover expenditures, its 8% interest rate would be applied to the amount of the specific borrowing, and any remaining average accumulated expenditures in excess of specific borrowing would be multiplied by the

weighted-average rate. If the average accumulated expenditures exceed the specific borrowing, the weighted-average rate would be multiplied by the

STEP 4 Determine the average accumulated expenditures.

STEP 5 Determine the interest capitalized.

The amount of interest capitalized is determined by multiplying the average accumulated expenditures by the construction rate of 8%.

¹⁸ If there were no other loans, the weighted-average rate would be 10% because the total interest is \$600,000 on total debt of \$6,000,000.

weighted-average rate on all other outstanding interest-bearing debt. Suppose, for illustration, that the 8% construction loan had been only \$500,000 rather than \$1,000,000. We would calculate capitalized interest using both the specific rate and the weighted-average rate.

| | Average Accumulated Expenditures | Rate | Interest |
|----------------------|----------------------------------|------|-----------------|
| Total | \$950,000 | | |
| Specific borrowing | 500,000 | 8% | \$40,000 |
| Excess | \$450,000 | 10% | 45,000 |
| Capitalized interest | | | <u>\$85,000</u> |

In our illustration, it is necessary to use this approach in 2007.

Interest capitalized is

\$85,000

or 9%

STEP 3: Compare
calculated interest with
actual interest incurred.

It is possible that the amount of interest calculated to be capitalized exceeds the amount of interest actually incurred. That is, the calculated interest capitalization is greater than the actual interest incurred. If this situation arises, interest is capitalized during 2007 for exactly the \$85,000 of capitalized interest calculated, so it's not necessary to limit the capitalized amount.

| Loans | | Rate | | Actual Interest | Calculated Interest |
|-------------|---|------|--|------------------|---------------------|
| \$1,000,000 | x | 8% | | \$80,000 | |
| 2,000,000 | x | 6% | | 120,000 | |
| 5,000,000 | x | 12% | | 480,000 | |
| | | | | <u>\$680,000</u> | <u>\$85,000</u> |

Use lower amount

Continuing the example based on the information in Illustration 10-2, let's determine the amount of interest capitalized during 2007 for the building. The total accumulated expenditures by the end of the project are

| | |
|---|--------------------|
| Accumulated expenditures at the beginning of 2007 (including interest capitalization) | \$1,576,000 |
| January 31, 2007 | 600,000 |
| April 30, 2007 | 300,000 |
| Accumulated expenditures at June 30, 2007 (before 2007 interest capitalization) | <u>\$2,476,000</u> |

The weighted-average accumulated expenditures by the end of the project are

| | | |
|---|---------------------|------------------|
| January 1, 2007 | \$1,576,000 x 1/6 = | \$259,333 |
| January 31, 2007 | 600,000 x 5/6 = | 500,000 |
| April 30, 2007 | 300,000 x 2/6 = | 100,000 |
| Average accumulated expenditures for 2007 | | <u>\$859,333</u> |

Notice that the 2007 expenditures are weighted relative to the construction expenditures for 2007 because the project was finished on June 30, 2007. Interest capitalized would be \$859,333, calculated as follows:

| | Average Accumulated Expenditures | Annual Rate | Fraction of Year | Interest |
|----------------------|----------------------------------|-------------|------------------|------------------|
| | \$859,333 | | | |
| Specific borrowing | 1,000,000 | x 8% | x 1/2 | \$40,000 |
| Excess | \$1,576,000 | x 10% | x 1/2 | \$78,800 |
| Capitalized interest | | | | <u>\$118,800</u> |

Multiplying by six twelfths reflects the fact that the interest rates are annual rates (12-month rates) and the construction period is only 6 months.

| Loans | Annual Rate | Actual Interest | Calculated Interest |
|-------------|---------------------------|------------------|---------------------|
| \$1,000,000 | 8% $\times \frac{6}{12}$ | \$40,000 | |
| 2,000,000 | 6% $\times \frac{6}{12}$ | 60,000 | |
| 4,000,000 | 12% $\times \frac{6}{12}$ | 240,000 | |
| | | <u>\$340,000</u> | |
| | | | Use lower amount |

As the use six months of 12% interest was a non-capitalized borrowing, the total capitalized cost of the building is \$2,574,800 (\$2,476,000 + \$98,800), and \$341,200 in interest would be expensed (\$340,000 - \$98,800).

ADDITIONAL CONSIDERATION

To see how the actual interest limitation might come into play, let's assume the specific borrowings in our illustration were \$200,000 and \$400,000 (instead of \$1,000,000 and \$4,000,000). Our comparison would change as follows:

| Loans | Annual Rate | Actual Interest | Calculated Interest |
|-----------|--------------------------|-----------------|---------------------|
| \$200,000 | 8% $\times \frac{6}{12}$ | \$40,000 | |
| 200,000 | 6% $\times \frac{6}{12}$ | 6,000 | |
| 400,000 | 2% $\times \frac{6}{12}$ | 24,000 | |
| | | <u>\$70,000</u> | \$98,800 |
| | | | Use lower amount |

The method of determining interest to capitalize that we've discussed is called the "specific interest" method because we use rates from specific construction loans to the extent of specific borrowings before using the average rate of other debt. Sometimes, though, it's difficult to associate specific borrowings with projects. In these situations, it's acceptable to just use the weighted-average rate of all interest-bearing debt, including all corporate non-constructive debt as well as the debt used for the project. In our illustration, for example, if the \$2,476,000 loan has not been specifically related to construction, we would calculate a weighted-average rate as follows:

| Loans | Rate | Interest | Weighted-average |
|-------------|-----------------------|---------------------------------|------------------|
| \$1,000,000 | 8% | \$80,000 | |
| 2,000,000 | 6% | 20,000 | |
| 4,000,000 | 12% | 480,000 | |
| \$7,000,000 | | <u>\$580,000</u> | |
| | Weighted-average rate | $\frac{\$580,000}{\$7,000,000}$ | 8.29% |

If we were using the weighted-average method rather than the specific interest method, we would simply multiply this single rate times the average accumulated expenditures to determine capitalizable interest.

Disclosure For an accounting period in which interest is capitalized, both the amount of interest costs incurred and the amount that has been capitalized should be

disclosed

PERSPECTIVE

The accounting principles of most countries permit some form of interest capitalization. Japan and Brazil are exceptions. However, differences do exist as to the situations when interest can be capitalized. IFRSs allow the capitalization of interest on inventories that require a substantial period of time to bring them to condition for sale. Differences exist as to the amount of interest to be capitalized. In Argentina, imputed interest on the company's equity may be capitalized.

disclosure. Graphic 10-5 shows an interest capitalization disclosure note that was included in a recent annual report of **Carrefour Corporation**, the world's largest grocer company.

GRAPHIC 10-5

Capitalized Interest Disclosure—Carrefour Corporation

Note 4—Property and Equipment (in part)

Capitalized interest on property and equipment amounted to \$26 million in 2011 and \$14 million in 2010. Capitalized interest is calculated as the weighted average of the interest rate on the company's debt multiplied by the amount of capital expenditures during the period.

RESEARCH AND DEVELOPMENT (R&D)

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For years the practice was to allow companies to either expense or capitalize R&D costs. In 1974 the FASB issued SFAS 2 which now requires all research and development costs be charged to expense when incurred.³⁴ This was a controversial standard opposed by the companies who preferred delaying the recognition of these expenses until later years when presumably the expenditures bear fruit.

A company undertakes an R&D project because it believes the project will eventually provide benefits that exceed the current expenditures. Unfortunately, though, it is difficult to predict which individual research and development projects will ultimately provide benefits. In fact, only 1 in 10 actually reach commercial production. Moreover, even for those projects that pay out, a direct relationship between research and development costs and speed to market or revenue is difficult to establish. In other words, even if R&D costs do lead to future benefits, it's difficult to objectively determine the size of the benefits and in which periods the costs should be expensed if they are capitalized. These are the issues that prompted the FASB to require immediate expensing.

The FASB's approach is certain to make cases to understate benefits and overstate current expense because at least some of the R&D expenditures will likely produce future benefits.

Determining R&D Costs. SFAS 2 distinguishes research and development as follows:

Research is planned search or critical investigation aimed at discovery of new knowledge with the purpose that such knowledge will be useful in developing a new product or service or a new process or technique or in bringing about a significant improvement to an existing product or process.

Development is the translation of research findings or other knowledge into a plan or design for a new product or process or for a significant improvement to an existing product or process, whether intended to be sold or used.

R&D costs include salaries, wages, and other labor costs of personnel engaged in R&D activities; the costs of materials consumed; equipment, facilities, and intangibles used in R&D projects; the costs of services performed by others in connection with R&D activities;

³⁴ Accounting for Research and Development Costs: Summary of Financial Accounting Standards No. 2 (Supplement 1974).

³⁵ FASB No. 1.

³⁶ FASB No. 2.

and a reasonable allocation of indirect costs related to these activities. General and administrative costs should not be included unless they are clearly related to the R&D activity.

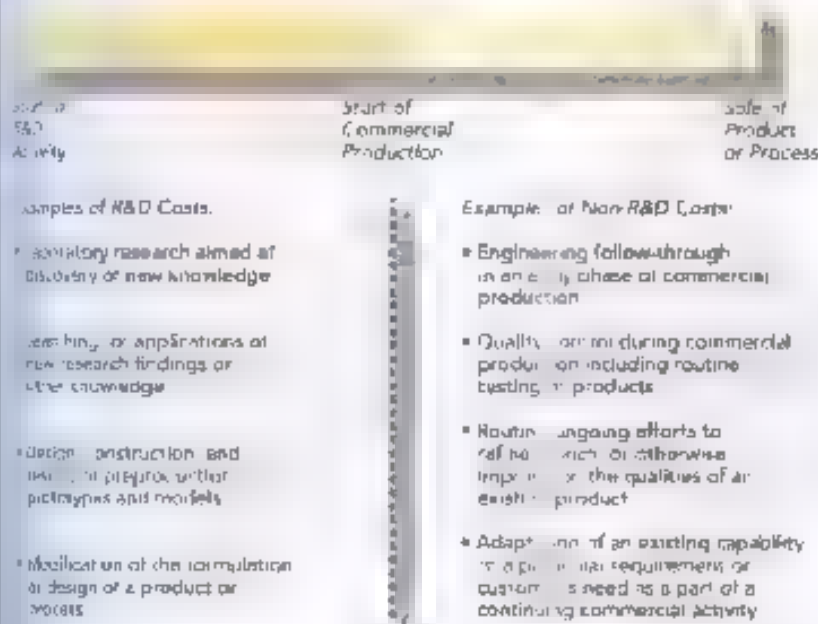
If an operational asset is purchased specifically for a single R&D project, its cost is capitalized as R&D and expensed immediately even though the asset's useful life extends beyond the current year. However, the cost of an operational asset that has an alternate future use beyond the current R&D project is capitalized as R&D and depreciated or amortized. If the alternate use is only a relatively minor R&D expense, it is expensed and more periods the assets are used for R&D activities.

In general, R&D costs pertain to activities that occur prior to the start of commercial production and costs of starting commercial production and beyond are not R&D costs. Figure 10-6 captures this concept with a time line beginning with the start of an R&D project and ending with the ultimate sale of a developed product or the use of a developed asset. The graphic also provides examples of activities typically included as R&D and excluded activities, which are not R&D.

R&D expenses include the depreciation and amortization of a purchased operational asset used in R&D activities.

GRAPHIC 10-6

Research and Development Expenditures



Costs incurred before the start of commercial production are all expensed as R&D. The costs incurred after commercial production begins would be either expensed or treated as manufacturing overhead and included in the cost of inventory. Let's look at an example in Learning Objectives.

Its salaries and wages, supplies consumed, and payments to others for R&D services are debited in 2006 as R&D. The equipment is capitalized and the 2006 depreciation is expensed as R&D. Even though the costs to develop the patent-product are expensed, the future patent costs for the patent are capitalized and amortized in future periods, just as intangibles are capitalized for purchased intangibles. Amortization of the patent is discussed in Chapter 11.

Costs incurred before the start of commercial production are all expensed as R&D.

Costs incurred after the start of commercial production are either expensed or treated as manufacturing overhead and included in the cost of inventory.

Patent and legal costs for a patent, copyrights and other developed intangibles are capitalized and amortized in future periods.

ILLUSTRATION 10-13
Research and Development Costs

The Askew Company made the following cash expenditures during 2006 related to the development of a new industrial plastic:

| | |
|---|---------------------|
| R&D salaries and wages | \$ 6,000,000 |
| R&D supplies consumed during 2006 | 3,000,000 |
| Purchase of R&D equipment | 5,000,000 |
| Patent filing and legal costs | 100,000 |
| Payments to others for services performed in connection with R&D activities | 1,200,000 |
| Total | \$14,200,000 |

The project resulted in a new product that will be manufactured in 2007. A patent was issued with this product in 2007. The equipment purchased will be employed in other projects. Depreciation on the equipment for 2006 was \$500,000.

The various expenditures would be recorded as follows:

| | | |
|---|------------|-----------|
| R&D expense (\$6,000,000 + 3,000,000 + 1,200,000) | 14,200,000 | |
| Cash | | 4,200,000 |
| To record R&D expenses | | |
| Equipment | 5,000,000 | |
| Cash | | 5,000,000 |
| To record the purchase of equipment | | |
| R&D expense | 500,000 | |
| Accumulated depreciation—equipment | | 500,000 |
| To record R&D depreciation | | |
| Patent | 100,000 | |
| Cash | | 100,000 |
| To capitalize the patent filing and legal costs | | |

| | |
|------------------------------|---------------------|
| Expenditures reconciliation: | |
| Recorded as R&D | \$14,200,000 |
| Capitalized as equipment | 5,000,000 |
| Capitalized as patent | 100,000 |
| Total expenditures | \$19,200,000 |

GAAP requires disclosure of total R&D expense incurred during the period.

GAAP require that total R&D expense incurred must be disclosed either as a line item on the income statement or in a disclosure note. For example, Microsoft reported \$4.9 billion of R&D expense on the face of its 2004 income statement. In our illustration, total R&D expense disclosed in 2006 would be \$14,700,000 (\$14,200,000 in expenditures plus \$500,000 in depreciation). Note that if Askew later sells this patent to another company or, say, \$15 million, the buyer would capitalize the entire purchase price rather than only the filing and legal costs. Once again, the reason for the apparent inconsistency in accounting treatment of internally generated intangibles and externally purchased intangibles is the difficulty of associating costs and benefits.

R&D Performed for Others. The requirements of SFAS 2 do not apply to contracts that perform R&D for other companies under contract. In these situations, the R&D costs are capitalized as inventory and carried forward into future years until the project is completed. Of course, justification is that the benefits of these expenditures are the contracts for which they are determinable and are earned over the term of the project. Income from these contracts is recognized using either the percentage-of-completion or completed contract method. We discussed these alternatives in Chapter 5.

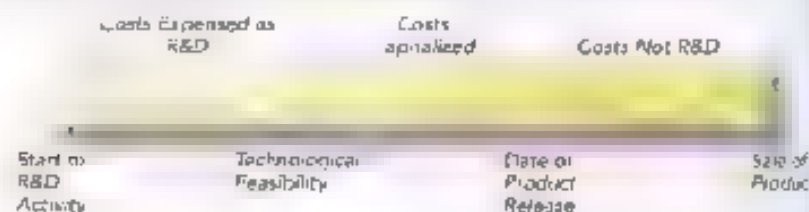
Another exception pertains to a company that develops computer software. Expenditures made after the software is determined to be technologically feasible but before the final

capitalize any further costs.²⁵ We generally capitalize the costs of computer software purchased for internal use.

Technological feasibility is established "when the enterprise has completed all planning, designing, coding, and testing activities that are necessary to establish that the product can be produced to meet its design specifications including functions, features, and technical performance requirements."²⁶ Costs incurred after technological feasibility but before the product is available for general release are capitalized as an intangible asset. These costs include (1) design and testing costs, (2) purchase of or production of master files and the treatment of data, (3) initial R&D, (4) program testing, and (5) program testing after the product release date usual in the R&D process. Costs incurred before the R&D process are introduced earlier in the chapter and added to the cost of establishing technological feasibility. Only the costs incurred between technological feasibility and the product release date are capitalized.

GRAPHIC 10-7

Research and Development Expenditures Computer Software



The amortization of capitalized computer software development costs begins when the product is available for general release to customers. The periodic amortization percentage is greater of (1) the percentage of current and anticipated revenues (percentage-of-revenue method) or (2) the straight-line percentage over the useful life of the asset, as shown in Illustration 10-14.

ILLUSTRATION 10-14

Software Development Costs

The Astro Corporation develops computer software graphics programs for sale. A new development project began in 2007, reached technological feasibility at the end of June 2008, and the product was available for sale on release date June 30, 2009. Development costs incurred from June 30 to the product release date were \$800,000. 2007 and 2008 total costs were \$3,000,000 and the company's useful life of the software is estimated at four years.

Astro Corporation would expense the \$200,000 of costs incurred prior to the establishment of technological feasibility and capitalize the \$800,000 of costs incurred between technological feasibility and the product availability date. 2007 amortization of the intangible asset, software development costs, is calculated as follows:

1. Percentage-of-revenue method:

$$\frac{\$1,000,000}{\$3,000,000 - 2,000,000} = 0.50 \times \$800,000 = \$240,000$$

2. Straight-line method:

$$\frac{1}{4} \text{ or } 25\% \times \$800,000 = \$200,000$$

The percentage-of-revenue method is used because it produces the greater amortization \$240,000.

Graphic 10-8 shows the software disclosure included in a recent annual report of Computer Associates International, Inc. The note provides a good summary of the accounting treatment of software development costs.

²⁵ Accounting for the Costs of Computer Software Developed for Distribution for Internal Use," Statement of Position 98-1 (AICPA, 1998).

²⁶ Accounting for the Costs of Computer Software Developed for Distribution for Internal Use," Statement of Financial Accounting Standards No. 98-1 (AICPA, 1998), paragraph 10.

Capitalized Software Costs and Other Identified Intangible Assets (in part)

1. The first part of the document is a letter from the President of the United States to the Secretary of the Navy, dated 1890. The letter discusses the appointment of a new Secretary of the Navy and the importance of the position.

computer software is an
 invisible level, under the surface
 of an interactive product, that
 makes it virtually possible
 to use the computer capital
 freely and fully.

It is just as hard to learn
 to use a program as it is to
 use a computer for a software
 engineer. That is why good
 software is so difficult to

GRAPHIC 10-8

Software Disclosure—
Computer Associates
International, Inc.

Are the generally accepted accounting principles allow this exception to the general rule regarding all R&D? We could attribute it to the political process. Software is a very important industry to our economy and perhaps its lobbying efforts resulted in the standard of software companies to capitalize certain R&D costs.

It could also illustrate the exception to the nature of the software business. Recall that R&D costs in general are expensed in the period incurred for two reasons: (1) they entail a high degree of uncertainty of future benefits, and (2) they are difficult to match with future benefits. With software, there is an important identifiable engineering milestone, technology availability. When this milestone is attained, the probability of the software product's success increases significantly. And because the useful life of software is fairly short (one to three years in most cases), it is much easier to determine the periods of increased revenues from R&D projects in other industries. Compare this situation with, say, the development of a new drug. Even after the drug has been developed, it must go through extensive testing and FDA (Food and Drug Administration) approval, which may never be attained. If attained, the useful life of the drug could be anywhere from a few months to many years.

Acquired Research and Development and Earnings Quality. It is not unusual for a company to buy another company in order to obtain technology developed or in the process of being developed by the acquired company. When the company buys another, we view the purchase price as tangible and intangible assets as well as on in-process research and development. To do this, we must distinguish between developed technology (an intangible asset) and in-process R&D. Using terminology adopted in accounting for software development costs, if technological feasibility has been achieved, the value of that technology is deemed "developed." The amount we attribute to developed technology is capitalized and amortized. The amount we attribute to in-process R&D, though, is expensed (written off) over the period of the acquisition.³⁷

4. In an example in 2003 IBM Corporation acquired 100% of the shares of Retnapar Corporation for \$2.163 million. IBM allocated the purchase price as follows: \$

| | |
|--------------------------------------|---------------|
| Tangible assets | \$1 34 |
| Developed technology | 229 |
| Other identifiable intangible assets | 212 |
| In-process research and development | 7 |
| Goodwill | 1 405 |
| | 3 96 |
| Less liabilities assumed | 1 033 |
| Total | \$2 63 |

1. The first is to suggest a project (providing resources, contributions). The project is expected to result in a dividend that would be paid to the project's participants. The second is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The third is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The fourth is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The fifth is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The sixth is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The seventh is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The eighth is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The ninth is to suggest that the project will be profitable and that the project's participants will be paid a dividend. The tenth is to suggest that the project will be profitable and that the project's participants will be paid a dividend.

1. The first step is to identify the main topic of the document. This is often found in the title or the first few paragraphs.

Note that the Rational acquisition included a \$239 million allocation to developed technology and only \$9 million to in-process R&D. At the time of the acquisition, Rational was an established company with few new developmental projects underway resulting in the relatively small amount of in-process R&D. In the late 1990s, many technology acquisitions included allocations to in-process R&D that exceeded 75% of the purchase price. Graphic 10-9 shows some examples.

Graphic 10-9
Percentages of In-Process R&D

| Acquiring Company | Acquired Company | Percentage of Purchase Price Allocated to In-Process R&D |
|-------------------|------------------|--|
| Acube Systems | Proteus | 95% |
| Pharmacia | Centocor | 80% |
| Schering-Plough | Genentech | 70% |
| Celgene | Immunogen | 60% |
| Fiber Optics | Optics | 75% |

A profusion of large percentage write-offs caused the SEC to scrutinize the amounts allocated to in-process R&D and, in some cases, require the write-offs to be reduced. For example, the \$37 billion acquisition of MCI by WorldCom originally included a \$7 billion amount allocated to in-process R&D. The SEC convinced WorldCom to reduce this amount to \$3 billion.

Should a financial statement user consider in-process R&D expense as part of a firm's permanent investment in its future? For example, if significant in-process R&D expenses appear regularly in the income statements of Cisco, Novartis, and other high-technology companies, in a manner similar to such items as restructuring costs and losses from inventory write-downs, a financial analyst must consider the nature of these expenses in an assessment of a company's permanent value.

The immediate expensing of in-process R&D is another example of "big bath" accounting techniques some companies use to manipulate earnings. By writing off large amounts of the purchase price, companies significantly reduce earnings in the year of acquisition. However, the larger the write-off, the smaller the amount allocated to goodwill. Until 2001, goodwill was capitalized and amortized over periods ranging from 7 to 40 years for most technology companies. The immediate write-off of a portion of the purchase price increased earnings in years after the future by reducing the amount of goodwill amortization.

As you learned earlier in this chapter, recent accounting standards significantly changed the accounting treatment of goodwill, eliminating the process of amortizing goodwill. With this change in accounting standards, reduce companies desire to write off large amounts of purchase price as in-process R&D? There is no easy answer to this question. Even though goodwill is no longer subject to periodic amortization, it is still subject to impairment of value rules that we discuss in Chapter 11. These rules could result in large future write-downs of the value of goodwill. Companies may be motivated to write off more goodwill as much of the purchase price of a business acquisition as possible to reduce future income reductions.

BUSINESSWEEK

The amount of money a company spends today is often written off as an immediate expense, reducing earnings in the year of acquisition. However, the larger the write-off, the smaller the amount allocated to goodwill. Until 2001, goodwill was capitalized and amortized over periods ranging from 7 to 40 years for most technology companies. The immediate write-off of a portion of the purchase price increased earnings in years after the future by reducing the amount of goodwill amortization.

Source: SEC Form 10-K.

FINANCIAL REPORTING CASE SOLUTION



Describe to Stan what it means to capitalize an expenditure. What is the general rule for determining which costs are capitalized when an operational asset is acquired? (p. 453) To capitalize an expenditure simply means to record it as an asset. All expenditures other than payments to shareholders and debt repayments are either expensed as incurred or capitalized. In general, the choice is determined by whether the expenditure benefits more than just the current period. Exceptions to this general principle are discussed in the chapter. The initial cost of an operational asset includes all expenditures necessary to bring the asset to its desired condition and location for use.

Which costs might be included in the initial cost of equipment? (p. 455) In addition to the purchase price, the cost of equipment might include the cost of transportation, installation, testing, and legal fees to establish title.

In what situations is interest capitalized rather than expensed? (p. 471) Interest is capitalized only for assets constructed for a company's own use or for assets constructed as discrete products for sale or lease. For example, Walt Disney capitalizes interest on assets constructed for its theme parks, resorts and other property and on theatrical and television productions in process. During the construction period, interest is considered a cost necessary to get the asset ready for its intended use.

What is the three-step process used to determine the amount of interest capitalized? (p. 472) The first step is to determine the average accumulated expenditures for the period. The second step is to multiply the average accumulated expenditures by an appropriate interest rate or rates to determine the amount of interest capitalized. A final step compares the interest determined in step two with actual interest incurred. Interest capitalized is limited to the amount of interest incurred.

What is goodwill and how is it measured? Why didn't the amount of goodwill in Disney's 2004 balance sheet change from the prior year? (p. 481) Goodwill represents the unique value of a company as a whole over and above its identifiable tangible and intangible assets. Because goodwill can't be separated from a company, it's not possible for a buyer to acquire it without also acquiring the whole company or a substantial portion of it. Goodwill will appear as an asset in a balance sheet only when it was purchased in connection with the acquisition of another company. In that case, the capitalized cost of goodwill equals the purchase price of the company less the fair value of the net assets acquired. Goodwill is a residual asset. It's the amount left after other assets are identified and valued. Recent accounting standards have significantly changed the way we account for goodwill. Before these new standards became effective in 2001, we amortized (expensed over time) goodwill just like any other intangible asset. This no longer is the case. Now, just like for other intangible assets that have indefinite useful lives, we do not amortize goodwill. That is why the amount of goodwill in Disney's 2004 balance sheet did not change from the prior year. ■

THE BOTTOM LINE

The initial cost of an operational asset acquired in an exchange transaction includes the resource price and all expenditures necessary to bring the asset to its desired condition and location for use. The cost of a natural resource includes the acquisition costs for the use of land, the exploration and development costs incurred before production begins, and restoration costs incurred during or at the end of extraction. Purchased intangibles are valued at their original cost to include the purchase price and legal and filing fees.

If a lump-sum purchase involves different assets, it is necessary to allocate the lump-sum acquisition price among the separate items according to some logical allocation method. A widely used allocation method is to divide the lump-sum purchase price according to the individual assets' relative market values.

- Assets acquired in exchange for deferred payment contracts are valued at their fair value or the present value of payments using a realistic interest rate.
- Assets acquired through the issuance of equity securities are valued at the fair value of the securities if known; if not known, the fair value of the assets received is used. Issued assets are valued at their fair value.
- A key to profitability is how well a company manages and utilizes its assets. Financial analysts often use activity, or turnover, ratios to evaluate a company's effectiveness in managing its assets. Operational assets—particularly property, plant, and equipment (PP&E)—usually are a company's primary revenue-generating assets. Their efficient use is critical to generating a satisfactory return to owners. One ratio that analysts often use to measure how effectively managers use PP&E is the fixed-asset turnover ratio. This ratio is calculated by dividing net sales by average fixed assets.
- When an operational asset is sold, a gain or loss is recognized for the difference between the consideration received and the asset's book value. The basic principle used for non-monetary exchanges is to value the asset(s) received based on the fair value of the asset(s) given up. In certain situations, the value(s) of the asset(s) received is based on the book value of the asset(s) given up.
- The cost of a self-constructed asset includes identifiable materials and labor and a portion of the company's manufacturing overhead costs. In addition, AAP requires the capitalization of interest incurred during construction. The amount of interest capitalized equals the average accumulated expenditures for the period multiplied by the applicable interest rates that do not exceed the interest incurred.
- Research and development costs usually are internally developed intangible assets or expenditures to produce intangible assets and legal costs for developed intangible assets capitalized. ■

OIL AND GAS ACCOUNTING

Chapter 1 characterized the establishment of accounting and reporting standards as a political process. Standards, particularly changes in standards, can have significant differential effects on companies, investors and creditors, and other interest groups. The FASB may consider potential economic consequences of a change in an accounting standard or the introduction of a new standard. The history of oil and gas accounting provides a good example of this political process and the effect of possible adverse economic consequences on the standard-setting process.

There are two generally accepted methods that companies can use to account for oil and gas exploration costs. The successful efforts method requires that exploration costs that are known not to have results are expensed. Costs of gas exploration, whether successful or not, be included as expenses in the period the expenditures are made. The alternative, the full cost method, allows costs incurred in searching for oil and gas within a large geographic area to be capitalized as assets and expensed in the future as oil and gas from the successful wells are removed from that area. Both of these methods are widely used. Illustration 10A-1 compares the two alternatives.

ILLUSTRATION 10A-1
Oil and Gas
Accounting

The Shannon Oil Company incurred \$24,000,000 in exploration costs for each of 10 oil wells drilled in 2006 in west Texas. Eight of the 10 wells were dry holes.

The accounting treatment of the \$24 million in total exploration costs will vary significantly depending on the accounting method used. The summary journal entries using each of the alternative methods are as follows:

| Successful Efforts | | Full Cost | |
|---------------------|------------|-------------|------------|
| Oil deposit | 4,000,000 | Oil deposit | 20,000,000 |
| Exploration expense | 16,000,000 | Cost | 20,000,000 |
| Cost | 20,000,000 | | |

Using the full-cost method, Shannon would capitalize the entire \$20 million which is expensed as oil from the two successful wells is depleted. On the other hand, using the successful efforts method, the cost of the unsuccessful well is expensed in 2006, and only the \$4 million cost related to the successful wells is capitalized and expensed in future periods as it is depleted.

In 1977 the FASB attempted to establish uniformity in the accounting treatment of oil and gas exploration costs. SFAS 79 was issued requiring all companies to use the successful efforts method.

Companies with an interest in the oil and gas companies that were required to write down their unsuccessful efforts accounting. These companies felt that the switch would cause a decline in their reported income over time. As a result, they argued, their ability to raise capital in the securities markets would be inhibited, which would result in a cutback of new exploration. The fear that the standard would cause domestic companies to significantly reduce oil and gas exploration and thus increase our dependence on foreign oil was conveyed to the U.S. Congress, the SEC, and the Department of Energy.

Extensive pressure from Congress, the SEC, and affected companies forced the FASB to amend Standard 79. Presently, oil and gas companies can use either the successful efforts or full-cost method to account for oil and gas exploration costs. Of course, the method used must be disclosed. For example, Graphic 10A-1 shows how Chevron-Texaco Corp., disclosed their use of the successful efforts method in a note to recent financial statements.

Major oil and gas companies are required to write down their unsuccessful efforts accounting. These companies felt that the switch would cause a decline in their reported income over time. As a result, they argued, their ability to raise capital in the securities markets would be inhibited, which would result in a cutback of new exploration. The fear that the standard would cause domestic companies to significantly reduce oil and gas exploration and thus increase our dependence on foreign oil was conveyed to the U.S. Congress, the SEC, and the Department of Energy.

Properties, Plant and Equipment

Oil and gas exploration costs are capitalized and expensed as oil and gas are produced and sold.

GRAPHIC 10A-1

Oil and Gas Accounting Disclosure—Chevron-Texaco Corp.

Oil and gas exploration costs are capitalized and expensed as oil and gas are produced and sold.

QUESTIONS FOR REVIEW OF KEY TOPICS

- 10-1 Define operational assets and explain the difference between tangible and intangible operational assets.
- 10-2 What is included in the original cost of an operational asset acquired in an exchange transaction?
- 10-3 Identify the costs associated with the initial valuation of a developed natural resource.
- 10-4 Briefly summarize the accounting treatment for intangible assets, explaining the difference between purchased and internally developed intangible assets.
- 10-5 What is goodwill and how is it measured?
- 10-6 Explain the method generally used to allocate the cost of a lump-sum purchase to the individual assets acquired.
- 10-7 When an operational asset is acquired and a note payable is assumed, explain how acquisition cost of the asset is determined when the interest rate on the note is less than the current market rate for similar notes.
- 10-8 Explain how operational assets acquired in exchange for equity securities are valued.
- 10-9 Explain how operational assets acquired through donation are valued.
- 10-10 When an operational asset is disposed of, how is gain or loss on disposal computed?
- 10-11 What is the basic principle for valuing operational assets acquired in exchange for other nonmonetary assets?
- 10-12 Identify the two exceptions to valuing operational assets acquired in nonmonetary exchanges at the fair value of the asset(s) given up.
- 10-13 In what situations is interest capitalized?
- 10-14 Define average accumulated expenditures and explain how it is computed.
- 10-15 Explain the difference between the specific interest method and the weighted-average method to determine the amount of interest to be capitalized.
- 10-16 Define RAC according to SFAS 7.

- ☐ 10-17 Explain the accounting treatment of equipment acquired for use in R&D projects.
- ☐ 10-18 Explain the accounting treatment of costs incurred to develop computer software.
- ☐ 10-19 Explain the difference in the accounting treatment of the cost of developed technology and the cost of process R&D in an acquisition.
- ☐ 10-20 Based on Appendix B, explain the difference between the successful efforts and the full-cost methods of accounting for oil and gas exploration costs.

100

Beaverton Lumber purchased a milling machine for \$35,000. In addition to the purchase price, it made the following expenditures: freight, \$1,500; installation, \$3,000; testing, \$2,000; personal property on the machine for the first year, \$500. What is the initial cost of the machine?

Pullerton Waste Management purchased and sold a warehouse for \$400,000. In addition to the net book value, Pullerton made the following expenditures related to the acquisition: transfer of title insurance, \$100,000; miscellaneous closing costs, \$5,000. The warehouse was expected to be useful in operations for 20 years. Pullerton is to depreciate the building on the basis of a new warehouse schedule. The appropriate depreciation schedule is the cost of the land and the building.

It is

Refer to the situation described in RF. Assume that Feltwell decides to use the warehouse valuation method. If the warehouse is appraised at \$100,000, the value of the land and building is \$50,000, and the \$50,000 of depreciation attributable to the building is not allowed, then capitalizing the cost of the land to the building

91

Silvaco Mining operates a vermicite mine in Africa as a qualitative exploration and development project. \$9.8 million. After the silver is extracted to approximately five years, Silvaco is obligated to restore its mine to its original condition, including constructing a wildlife preserve. The company's estimated probability of success is 60%. The net present value of the investment is \$14.4M (\$1.7M) at a discount rate of 55%, 10% if a currency and 10% if a 5% probability. The company's credit-adjusted evidence of the cost of interest is 60%. What is the initial cost of the silver mine?

11
E.C.

Refer to the situation described in BE 6-4. What is the carrying value of the net retirement liability at the end of one year? Assuming that the actual restoration costs incurred after enactment is \$4,000,000, what amount of gain or loss will Smithson recognize on retirement of the liability?

Protech Software acquired all of the remaining stock of Reliable Software for \$14 million. The fair value of Reliable's net assets (assets minus liabilities) was \$11.5 million. The fair values of Reliable's assets and liabilities equaled their book values with the exception of certain identifiable intangible assets whose fair values exceeded book values by \$2.5 million. Calculate the goodwill that should be recorded.

1990

On June 31, Kimberly Farms purchased custom-made harvesting machinery from a local producer in Vermont. Kimberly signed a promissory bearing note requesting the payment of \$50,000 in two years. The value of the machinery is fair market, but an 8% interest rate properly reflects the time value of money in this type of loan agreement. At what amount will Kimberly initially value the machinery? How much net cash expense will Kimberly recognize in the tax year subsequent to this note for the year ended December

51

Stackeoff Corporation acquired a patent from its founder, Jan Stackeoff, in exchange for 500,000 shares of the company's common stock. On the date of the exchange, the common stock had a market price of \$22 per share. Determine the cost of the patent.

The balance sheets of Pinewood Resorts reported net fixed assets of \$740,000 and \$940,000 at the end of 2005 and 2006, respectively. The fixed-asset turnover ratio for 2006 was 3.25. (Compute Pinewood's 2006 value for CFI.)

- 10-10 **Disposal of operational assets**
 A company with net book value of equipment of \$50,000 has a gain of \$10,000 on the sale of the equipment. What was the gain or loss on the sale of the equipment?
- 10-11 **Monetary exchange**
 Calaveras Tire exchanged machinery for two pickup trucks. The book value and fair value of the machinery were \$100,000 and \$80,000, respectively. The pickup trucks had a book value of \$40,000 and a fair value of \$60,000. What was the gain or loss on the exchange?
- 10-12 **Nonmonetary exchange**
 Refer to the situation described in 10-11. Answer the questions assuming that the fair value of the machinery was \$120,000 instead of \$80,000.
- 10-13 **Monetary exchange**
 Refer to the situation described in 10-11. Answer the questions assuming that the exchange lacks commercial substance.
- 10-14 **Asset capitalization**
 A company constructs a building for its own use. Construction began on January 2 and ended on December 28. The expenditures for construction were as follows: January 2, \$500,000; March 3, \$600,000; June 30, \$400,000; October 10, \$600,000. To help finance construction, the company arranged a 7% interest-bearing loan of \$1,000,000. The loan was repaid on December 28. The company also had a \$1 million loan with a 5% interest rate. The company uses the specific interest method. Calculate the amount of interest capitalized for the year.
- 10-15 **Asset capitalization**
 Refer to the situation described in 10-14. Assuming the company uses the weighted-average method, calculate the amount of interest capitalized for the year.
- 10-16 **Costs and benefits**
 Master Technology incurred the following costs during the year relative to the creation of a new type of personal computer monitor:
- | | |
|---|-----------|
| Salaries | \$220,000 |
| Depreciation on R&D facilities and equipment | 75,000 |
| Utilities and other other costs incurred for the R&D facilities | 60,000 |
| Patenting and related legal | 25,000 |
| Payment to another company for performing a portion of the development work | 120,000 |
| Costs of adapting the new monitor for the specific needs of a customer | 80,000 |

What amount should Master report as research and development expense in its income statement?

EXERCISES

Additional exercises and problems are available on the text website: www.pptext.com/exercises

- 10-1 **Land and building**
 On March 1, 2006, Beldin Corporation purchased land as a factory site for \$50,000. An old building on the property was demolished, and construction began on a new building that was completed on December 31, 2006. During 2006, the following costs were incurred:
- | | |
|---|----------|
| Demolition of old building | \$ 4,000 |
| Architect's fees for new building | 12,000 |
| Legal fees for title investigation of land | 2,000 |
| Property taxes on land for the year ending March 31, 2006 | 1,000 |
| Construction costs | 500,000 |
| Interest on construction loan | 5,000 |

Salvaged materials resulting from the demolition of the old building were sold for \$1,000.

Required:

Determine the amounts that Beldin will capitalize as the cost of the land and the new building.

E 10-2

Accounting for
machinery

• 10

Coltrose Company purchased a new machine and made the following expenditures:

| | |
|---|----------|
| Purchase price | \$45,000 |
| Sales tax | 2,250 |
| Freight charges for shipment of machine | 750 |
| Insurance on the machine for the first year | 900 |
| Installation of machine | 1,000 |

The machine, including sales tax, was put forward on open account, with payment due in 30 days. All other expenditures listed above were paid in cash.

Required:

Prepare the necessary journal entries to record the above expenditures.

E 10-3

Cost of a natural
resource

• 10

Jackpot Mining Company operates a copper mine in central Minnesota. The company paid \$15,000,000 for the mining site and spent an additional \$500,000 to prepare the mine for extraction of the ore. After the copper is extracted to approximately four years, the company is required to restore the mine to original condition, including reforestation and other site cleanup agreements. The company has provided the following three cash flow possibilities for the restoration costs:

| | Cash Outflow | Probability |
|---|--------------|-------------|
| 1 | 1,000,000 | 25% |
| 2 | 2,000,000 | 40% |
| 3 | 3,000,000 | 35% |

To aid extraction, Jackpot purchased some new equipment for only \$200,000. After the mine is removed from this mine, the equipment will be sold. The credit-adjusted, risk-free rate of interest is 10% required.

1. Determine the cost of the copper mine.
2. Prepare the journal entries to record the acquisition costs of the mine and the purchase of equipment.

E 10-4

Unincorporated

• 10

Winters Corporation was organized early in 2006. The following expenditures were made during the first six months of the year:

| | |
|--|-----------|
| Attorney's fees in connection with the organization of the corporation | \$ 4,000 |
| State filing fees and other incorporation costs | 2,000 |
| Purchase of a patent | 20,000 |
| Legal and other fees for transfer of the patent | 1,000 |
| Purchase of furniture | 3,000 |
| Pre-opening salaries | 40,000 |
| Total | \$ 70,000 |

Required:

Prepare a summary journal entry to record the \$70,000 in cash expenditures.

E 10-5

Goodwill

• 10

On March 31, 2006, the Williams Corporation acquired all of the outstanding common stock of Barney Corporation for \$7,000,000 in cash. The book values and fair values of Barney's assets and liabilities were as follows:

| | Book Value | Fair Value |
|--------------------------------|--------------|--------------|
| Current assets | \$ 6,000,000 | \$ 7,500,000 |
| Property, plant, and equipment | 1,000,000 | 1,400,000 |
| Other assets | 1,000,000 | 1,500,000 |
| Current liabilities | 4,000,000 | 4,000,000 |
| Long-term liabilities | 4,000,000 | 5,500,000 |

Required:

Calculate the amount paid for goodwill.

E 10-6

Goodwill

• 10

Johnson Corporation purchased all of the outstanding common stock of Smith Corporation for \$5,000,000 in cash. The book value of Smith's net assets (assets minus liabilities), was \$7,200,000. The fair values of Smith's assets and liabilities were equal to their book values with the following exceptions:

| | Book Value | Fair Value |
|--------------------------------|-------------|-------------|
| Receivables | \$1,200,000 | \$1,100,000 |
| Property, plant, and equipment | 3,000,000 | 3,400,000 |
| Intangible assets | 200,000 | 1,200,000 |

Required:

Calculate the amount paid for goodwill.

The following questions dealing with operational assets are adopted from questions that appeared on CPA examinations. Determine the response that best completes the statements or questions.

1. On December 31, 2006, Boyd Co. purchased a \$400,000 tract of land for a factory site. Boyd spent on all building on the property and sold the materials it salvaged from the demolition. Boyd incurs additional costs and realized salvage proceeds during December 2006 as follows:

| | |
|---|----------|
| Demolition of old building | \$50,000 |
| Legal fees for purchase contract and recording of ownership | 10,000 |
| Title guarantee insurance | 12,000 |
| Proceeds from sale of salvaged materials | 8,000 |

In its December 31, 2006, balance sheet, Boyd should report a balance in the land account of

- \$460,000
- \$450,000
- \$440,000
- \$430,000

2. On October 1, 2006, Shaw Corp. purchased a machine for \$126,000 that was placed in service on November 19, 2006. Shaw incurred additional costs for the machine, as follows:

| | |
|--------------|---------|
| Shipping | \$3,000 |
| Installation | 6,000 |
| Taxes | 5,000 |

In Shaw's November 19, 2006, balance sheet, the machine's cost should be reported as

- \$130,000
- \$135,000
- \$140,000
- \$144,000

3. My Corp. bought Patent A for \$40,000 and Patent B for \$60,000. My also paid acquisition costs of \$5,000 for Patent A and \$7,000 for Patent B. Both patents were challenged in legal actions. My paid \$20,000 in legal fees for a successful defense of Patent A and \$30,000 in legal fees for an unsuccessful defense of Patent B. What amount should My capitalize for patents?

- \$107,000
- \$112,000
- \$65,000
- \$43,000

Pinewood Company purchased two buildings on four acres of land. The lump-sum purchase price was \$900,000. According to independent appraisals, the fair market values were \$450,000 (building A) and \$450,000 (building B) for the buildings and \$300,000 for the land.

Required:

Determine the initial valuation of the buildings and the land.

On January 1, 2006, Byner Company purchased a used tractor. Byner paid \$5,000 down and signed a non-interest-bearing note requiring \$25,000 to be paid on December 31, 2006. The fair value of the tractor is not determinable. An interest rate of 0% properly reflects the time value of money for this type of loan agreement. The company's fiscal year-end is December 31.

Required:

- Prepare the journal entry to record the acquisition of the tractor. Round computations to the nearest dollar.
- How much interest expense will the company include in its 2006 and 2007 income statements for this note?
- What is the amount of the liability the company will report on its 2006 and 2007 balance sheets for this note?

On February 1, 2006, the Kilon Corporation issued 5,000 shares of its capital stock in exchange for 150 acres of land located in the city of Minneapolis. On the date of the acquisition, Kilon's common stock had a market value of \$18 per share. An office building was constructed on the site by an independent contractor. The building was completed on November 2, 2006, at a cost of \$900,000. Kilon paid \$400,000 in cash and the remainder was paid by the city of Minneapolis.

Required:

Prepare the journal entries to record the acquisition of the land and the building, assuming that SFAS 116 guidelines apply.

E 10-11
Financial statement analysis

• 103

E 10-12
Disposal of operational asset

• 106

E 10-13
Nonmonetary exchange

• 106

E 10-14
Nonmonetary exchange

• 106

E 10-15
Nonmonetary exchange

• 106

E 10-16
Nonmonetary exchange

• 106

E 10-17
Nonmonetary exchange

• 106

E 10-18
Acquisition cost, multiple methods

• 107, 103, 104

United Corporation reported the following information in its 2004 financial statements (\$ in millions):

| | 2004 | 2003 |
|-------------------------------------|----------|----------|
| Balance sheet | | |
| Property, plant, and equipment, net | \$ 5,708 | \$ 6,661 |
| Income statement | | |
| Net sales for 2004 | \$34,209 | |

Required:

1. Calculate United's 2004 liquidated net worth ratio.
2. How would you interpret this ratio?

Fussell Farms, Inc. purchased a tractor in 2003 at a cost of \$30,000. The tractor was sold for \$10,000. Depreciation recognized through the disposal date totaled \$20,000.

Required:

1. Prepare the journal entry to record the sale.
2. Assuming that the tractor was sold for \$19,000, prepare the journal entry to record the sale.

Coding Company recently traded in an older model computer for a new model. The old model's book value was \$180,000 (original cost of \$400,000 less \$220,000 in accumulated depreciation) and its fair value was \$200,000. Coding paid \$60,000 to complete the exchange.

Required:

Prepare the journal entry to record the exchange.

(This is a variation of the previous exercise.)

Required:

Assume the same facts as in Exercise 10-13 except that the fair value of the old equipment is \$170,000. Prepare the journal entry to record the exchange.

The Broome Corporation exchanged land for a patent. The land had a book value of \$20,000 and a fair value of \$30,000. Broome paid the owner of the patent \$10,000 to complete the exchange.

Required:

1. What is the fair value of the patent?
2. Prepare the journal entry to record the exchange.

(This is a variation of the previous exercise.)

Required:

Assume the same facts as in Exercise 10-14 except that Broome received \$3,000 from the owner of the patent to complete the exchange.

1. What is the fair value of the patent?

2. Prepare the journal entry to record the exchange.

The Tinsley Company exchanged land that it had been holding for future plant expansion for a nonresidential parcel situated farther from residential areas. Tinsley carried the land at its original cost of \$100,000. According to an independent appraisal, the land currently is worth \$70,000. Tinsley gave \$30,000 in cash to complete the transaction.

Required:

1. What is the fair value of the nonresidential land received by Tinsley?

2. Prepare the journal entry to record the exchange.

3. Prepare the journal entry to record the exchange, assuming the exchange lacks commercial substance.

Commerz Corporation acquires manufacturing equipment for use in its assembly line. Below are the independent situations relating to the acquisition of the equipment.

1. The equipment was purchased in cash for \$25,000. Terms were 2/10, net 30. Payment was made within the discount period. The company's accountant has a question about the net cost of the equipment.
2. Commerz gave the seller a noninterest-bearing note. The note required payments of \$27,000 and, according to an independent appraisal, the land currently is worth \$70,000. Tinsley gave \$30,000 in cash to complete the transaction.
3. Commerz traded in old equipment that had a book value of \$6,000 (original cost of \$14,000 less accumulated depreciation of \$8,000) and paid cash of \$27,000. The old equipment had a fair value of \$2,500 on the date of the exchange.
4. Commerz issued 1,000 shares of its common stock in exchange for the equipment. The fair value of the common stock was not determinable. The equipment could have been purchased in cash for \$25,000.

Required:

For each of the above situations, prepare the journal entry required to record the acquisition of the equipment. Round computations to the nearest dollar.

On January 1, 2006, the Marjee Company began construction of an office building to be used as its corporate headquarters. The building was completed early in 2007. Construction expenditures for 2006, which were incurred evenly throughout the year, totaled \$5,000,000. Marjee had the following debt obligations which were outstanding during all of 2006:

| | | |
|-------------------|-----|------------|
| Construction loan | 12% | \$ 500,000 |
| Long-term debt | 9% | 2,000,000 |
| Accounts payable | 6% | 4,000,000 |

Required:

Calculate the amount of interest capitalized for the building using the specific interest method.

On January 2, 2006, the Shagan Company began construction on a new manufacturing facility for its own use. The building was completed in 2007. The only interest-bearing debt the company had outstanding during 2006 was long-term bonds with a carrying value of \$10,000,000 and an effective interest rate of 8%. Construction expenditures incurred during 2006 were as follows:

| | |
|--------------|-----------|
| January 2 | \$500,000 |
| March | 400,000 |
| July 15 | 800,000 |
| September 30 | 400,000 |
| December 31 | 300,000 |

Required:

Calculate the amount of interest capitalized for 2006.

On January 2, 2006, the Highlands Company began construction on a new manufacturing facility for its own use. The building was completed in 2007. The company borrowed \$1,500,000 at 8% on January 2 to help finance the construction. In addition to the construction loan, Highlands had the following debt outstanding throughout 2006:

| |
|-------------------------------|
| \$5,000,000 12% bonds |
| \$2,000,000 8% long-term note |

Construction expenditures incurred during 2006 were as follows:

| | |
|--------------|------------|
| January 2 | \$ 600,000 |
| March 31 | 1,200,000 |
| June 30 | 800,000 |
| September 30 | 400,000 |
| December | 400,000 |

Required:

Calculate the amount of interest capitalized for 2006 using the specific interest method.

In 2006, Space Technology Company modified its model Z2 satellite to incorporate a new communication device. The company made the following expenditures:

| | |
|---|--------------------|
| Basic research to develop the technology | \$2,000,000 |
| Engineering design work | 600,000 |
| Development of a prototype device | 300,000 |
| Acquisition of equipment | 40,000 |
| Testing and modification of prototype | 200,000 |
| Legal and other fees for patent application on the new communication system | 40,000 |
| Legal fees for successful defense of the new patent | 20,000 |
| Total | \$3,300,000 |

The equipment will be used on this and other research projects. Depreciation on the equipment for 2006 is \$100,000.

During your year-end review of the accounts related to intangibles, you discover that the company has capitalized all of the above as costs of the patent. Management contends that the device simply represents an improvement of the existing communication system of the satellite and, therefore, should be capitalized.

Required:

Prepare correcting entries that reflect the appropriate treatment of the expenditures.

E 10-23
Research and
development

• LQ8

Delaware Company incurred the following research and development costs during 2006.

| | |
|--|--------------------|
| Salaries and wages for lab research | \$ 400,000 |
| Materials used in R&D projects | 200,000 |
| Depreciation of equipment | 900,000 |
| Bank paid on outstanding R&D projects | 320,000 |
| Patent legal and legal fees for a developed product | 65,000 |
| Salaries, wages, and supplies for R&D activities related to another company under a contract | 350,000 |
| Total | \$2,235,000 |

The equipment has a seven-year life and will be used for a number of research projects. Depreciation expense is \$120,000.

Required:

Calculate the amount of research and development expense that Delaware should report in its 2006 income statement.

E 10-24
Multiple choice,
operational assets

• LQ6 through LQ8

The following questions dealing with operational assets are adapted from questions that appeared on the examinations. Determine the response that best completes the statements or questions.

1. Daird Co. traded a delivery van and \$5,000 cash for a newer van owned by West Corp. The relevant information relates to the values of the vans on the exchange date.

| | Book Value | Fair Value |
|---------|------------|------------|
| Old van | \$30,000 | \$45,000 |
| New van | 40,000 | 50,000 |

Daird's marginal tax rate is 30%. When reported should Daird report as gain on exchange of the vans?

- a. \$ 5,000
b. \$ 10,000
c. \$750
d. \$0

2. Heller Co. incurred the following costs in 2006:

| | |
|---|-----------|
| Research and development services performed by Kay Corp. for Heller | \$150,000 |
| Testing for evaluation of new product | 25,000 |
| Laboratory research aimed at discovery of new knowledge | 85,000 |

What amount should Heller report as research and development expense in its (income statement) for the year ended December 31, 2006?

- a. \$ 5,000
b. \$ 50,000
c. \$275,000
d. \$460,000

3. During 2006, Day Co. constructed machinery for its own use and for sale to customers. Day routinely manufactures machinery for sale. Bank loans financed these assets both during construction and after construction was complete. How much of the interest incurred should be reported as interest expense in the 2006 income statement?

| Interest Incurred for Machinery for Own Use | Interest Incurred for Machinery Held for Sale |
|---|---|
| a. All interest incurred | All interest incurred |
| b. All interest incurred | Interest incurred after completion |
| c. Interest incurred after completion | Interest incurred after completion |
| d. Interest incurred after completion | All interest incurred |

4. Cole Co. began constructing a new building for its own use in January 2006. During 2006, it incurred interest of \$50,000 on specific construction debt and \$30,000 on other borrowings. Interest computed on the weighted-average amount of accumulated expenditures for the building during 2006 was \$40,000. What amount of interest cost should Cole capitalize?

- a. \$20,000
b. \$40,000
c. \$50,000
d. \$70,000

E 10-25
Concepts: terminology

• Q1 Q4 LQ6 LQ7

Items below are several terms and phrases associated with operational assets. Pair each item from List A (by letter) with the item from List B that is most appropriately associated with it.

List A

- 1. Depreciation
- 2. Depletion
- 3. Amortization
- 4. Average accumulated expenditures
- 5. Revenue—donation of asset
- 6. Nonmonetary exchange—natural resources
- 7. Nonmonetary exchange—other assets
- 8. Copyright
- 9. Trademark
- 10. Goodwill

List B

- a. Exclusive right to display a word, a symbol, or an emblem
- b. Exclusive right to benefit from a creative work
- c. Operational assets that represent rights
- d. The allocation of cost for natural resources
- e. Purchases plus less fair market value of net identifiable intangibles
- f. The allocation of cost for plant and equipment
- g. Approximation of average amount of debt if all construction costs were borrowed
- h. Amount credited when assets are donated to a corporation
- i. The allocation of cost for intangible assets
- j. Basic principle is to value assets acquired using fair value of assets given
- k. Wasting assets

10-50
Software development
costs

10-51
Goodwill

10-52
The Certified CMA
exam is a written exam
in which candidates
must select the correct
answer.

On January 1, 2007, the newly formed company began developing a new software package to be marketed. The project was completed in December 2007 and cost \$10 million. At that amount \$4 million was spent before technological feasibility was established. Escobar expects a useful life of five years for the new product with initial revenues of \$10 million. During 2007, revenues of \$4 million were recognized.

1. Prepare a journal entry to record the 2007 development costs.
2. Determine the required amortization expense for 2007.
3. At what amount should the computer software costs be reported in the December 31, 2007, balance sheet?

The following questions dealing with operational assets are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or answers the question.

1. Pearl Corporation acquired manufacturing machinery on January 1 for \$9,000. During the year, the machine produced 1,000 units, of which 600 were sold. There was no work-in-process inventory at the beginning or at the end of the year. Installation charges of \$300 and delivery charges of \$200 were also incurred. The machine is expected to have a useful life of five years with an estimated salvage value of \$1,500. Pearl uses the straight-line depreciation method. The original cost of the machinery to be recorded in Pearl's books is:
 - a. \$9,500
 - b. \$9,100
 - c. \$9,100
 - d. \$9,600

Questions 2 and 3 are based on the following information. Harper is contemplating exchanging a machine used in its operations for a similar machine up May 31. Harper will exchange machines with either Austin Corporation or Lubin Company. The data relating to the machines are presented below.

| | Harper | Austin | Lubin |
|--------------------------------------|-----------|-----------|-----------|
| Original cost of the machine | \$ 60,000 | \$ 80,000 | \$ 50,000 |
| Accumulated depreciation thru May 31 | 98,500 | 70,000 | 65,000 |
| Fair value at May 31 | 80,000 | 95,000 | 60,000 |

2. If Harper exchanges its used machine and \$ 5,000 cash for Austin's used machine, the gain that Harper should recognize from this transaction for financial reporting purposes would be:
 - a. \$0
 - b. \$ 5,000
 - c. \$10,000
 - d. \$15,000
3. If Harper exchanges its used machine for Lubin's used machine and also receives \$20,000 cash, the gain that Harper should recognize from this transaction for financial reporting purposes would be:
 - a. \$0
 - b. \$4,000
 - c. \$20,000
 - d. \$25,000

E 10-28

Full-cost and successful efforts methods compared (based on Appendix 10).

• • •

The Mahanette Oil Company incurred the following costs in 2005 searching and drilling for oil as follows:

| | |
|---------------|------------|
| Well 101 | \$ 50,000 |
| Well 102 | 60,000 |
| Well 103 | 80,000 |
| Wells 104-105 | 760,000 |
| Total | \$ 950,000 |

It was determined that Wells 101-103 were dry holes and were abandoned. Wells 104-105 are determined to have sufficient oil reserves to be commercially successful.

Required

1. Prepare a summary journal entry to record the indicated costs resulting from the successful efforts method of accounting for exploration costs. All of the exploration costs were paid in cash.
2. Prepare a summary journal entry to record the indicated costs assuming that the company uses the successful efforts method of accounting for exploration costs. All of the exploration costs were paid in cash.

PROBLEMS

Additional problems are available on the text website: www.mhhe.com/ep14e

An alternate exercise and problem set is available on the text website: www.mhhe.com/ep14e

P 10-1

Acquisition costs

• 101 through 104

Excel

Tristar Production Company began operations on September 1, 2006. Listed below are a number of transactions that occurred during its first four months of operations.

- a. On September 1, the company acquired five acres of land with a building that will be used as a warehouse. Tristar paid \$100,000 in cash for the property. According to appraisals, the land had a market value of \$75,000 and the building had a fair market value of \$45,000.
- b. On September 1, Tristar signed a \$40,000 noninterest-bearing note to purchase equipment. \$40,000 payment is due on September 1, 2007. Assume that 8% is a reasonable interest rate.
- c. On September 15, a truck was donated to the corporation. Similar trucks were selling for \$2,500.
- d. On September 18, the company paid its lawyer \$3,500 for organizing the corporation.
- e. On October 10, Tristar purchased machinery for cash. The purchase price was \$1,500 and \$100 freight charges also were paid.
- f. On December 2, Tristar acquired various items of office equipment. The company was short of cash and could not pay the \$5,500 nominal price. The supplier agreed to accept 200 shares of its commonly owned common stock in exchange for the equipment. The market value of the stock is not readily determinable.
- g. On December 18, the company acquired a tract of land at a cost of \$20,000. It paid \$2,000 down and signed a 10% note with both principal and interest due in one year. Ten percent is an appropriate rate of interest for this note.

Required

Prepare journal entries to record each of the above transactions.

P 10-2

Acquisition costs; land and building

• 101 through 104

On January 1, 2006, the Blackstone Corporation purchased a tract of land (site number 11) with a building for \$600,000. Additionally, Blackstone paid a real estate broker's commission of \$30,000, legal fees of \$5,000, and title insurance of \$10,000. The closing statement indicated that the total value was \$675,000; the building value was \$100,000. Shortly after acquisition, the building was rented at a cost of \$75,000.

Blackstone entered into a \$3,000,000 fixed price contract with Harbert Builders, Inc., on March 1, 2006, for the construction of an office building on land site 11. The building was completed and occupied on October 1, 2007. Additional construction costs were incurred as follows:

| | |
|---|----------|
| Plans, specifications, and blueprints | \$12,000 |
| Architects' fees for design and supervision | \$5,000 |

To finance the construction cost, Blackstone borrowed \$3,000,000 on March 1, 2006. The loan payable is to be paid in installments of \$500,000 plus interest at the rate of 14%. Blackstone's payments of scheduled building construction expenditures were as follows:

| | |
|--|------------|
| For the period March 1 to December 31, 2006 | \$ 900,000 |
| For the period January 1 to September 30, 2007 | 1,100,000 |

Required

Prepare a schedule that discloses the breakdown costs making up the balance in the land account respect of land site 11 as of September 30, 2007.

2. Prepare a schedule that discloses the individual assets that should be capitalized in the office building accounts as of September 30, 2007.

(AICPA adapted)

The plant asset and accumulated depreciation accounts of Pell Corporation had the following balances at December 31, 2006:

| | Plant Asset | Accumulated Depreciation |
|-------------------------|-------------|--------------------------|
| Land | \$ 350,000 | \$ — |
| Land improvements | 180,000 | 45,000 |
| Building | 1,500,000 | 350,000 |
| Machinery and equipment | 1,184,000 | 405,000 |
| Automobiles | 150,000 | 112,000 |

Transactions during 2006 were as follows:

- On January 2, 2006, machinery and equipment were purchased at a total invoice cost of \$250,000 which included a \$5,500 charge for freight. Installation costs of \$27,000 were incurred.
- On March 31, 2006, a machine purchased for \$58,000 in 2002 was sold for \$30,500. Depreciation recorded through the date of sale totaled \$24,500.
- On May 1, 2006, expenditures of \$1,200 were made to repair parking lots at Pell's plant location. The work was necessitated by damage caused by severe winter weather.
- On November 1, 2006, Pell acquired a tract of land with an existing building in exchange for 10,000 shares of Pell's common stock that had a market price of \$18 per share. Pell paid legal fees and title insurance totaling \$23,000. Shortly after acquisition, the building was rented at a cost of \$35,000 in anticipation of new building construction in 2007.
- On September 3, 2006, Pell purchased a new automobile for \$4,500 to replace an old automobile purchased for \$12,500 in 2002. Depreciation on the old automobile recorded through December 31, 2006, totaled \$3,500. The market value of the old automobile was \$3,750.

Required:

- Prepare a schedule analyzing the changes in each of the plant assets during 2006, with detailed supporting computations.
- Prepare a schedule showing the gain or loss from each asset disposal that should be recognized in Pell's income statement for the year ended December 31, 2006.

(AICPA adapted)

The Harkneyer Corporation commenced operations early in 2006. A number of expenditures were made during 2006 that were debited to one account called *Intangible Asset*. A recap of the \$644,000 balance in this account at the end of 2006 was as follows:

| Date | Transaction | Amount |
|----------|--|------------------|
| 2/3/06 | State incorporation fees and legal costs related to organizing the corporation | \$ 7,000 |
| 3/1/06 | Fire insurance premium for three-year period | 8,000 |
| 5/15/06 | Purchased a patent | 20,000 |
| 4/30/06 | Research and development costs | 40,000 |
| 6/15/06 | Legal fees for filing a patent on a new product resulting from an R&D project | 3,000 |
| 9/30/06 | Legal fee for successful defense of patent developed above | 2,000 |
| 10/3/06 | Entered into a 5-year franchise agreement with franchisor | 40,000 |
| various | Selling costs | 6,000 |
| 11/30/06 | Purchase of all of the outstanding common stock of Seltz Corp. | 500,000 |
| | Total | \$644,000 |

The total purchase price of the Seltz Corp. stock was debited to this account. The market value of Seltz Corp.'s assets and liabilities on the date of the purchase were as follows:

| | |
|-------------------------|------------------|
| Receivables | \$100,000 |
| Equipment | 350,000 |
| Patent | 150,000 |
| Total assets | 600,000 |
| Note payable assumed | (220,000) |
| Market value net assets | <u>\$380,000</u> |

Required:

Prepare the necessary journal entries to clear the intangible account and to set up accounts for patents, copyrights, other types of assets, and other items indicated by the transactions.

P 10-5

Acquisition costs;
journal entries

• 100 1003 1006 1009

Consider each of the transactions below. All of the expenditures were made in cash.

1. The Edison Company spent \$17,000 during the year for experimental purposes in connection with the development of a new product.
2. In April, the Marshall Company lost a patent infringement suit and paid the plaintiff \$7,500.
3. In March, the Cleenway Landscapers bought equipment. Cleenway paid \$6,000 down and gave a promissory note requiring the payment of \$12,000 in nine months. The cash price for the equipment was \$23,500.
4. On June 1, the Jackson Corporation installed a sprinkler system throughout the building at a cost of \$4,900.
5. The Mayer Company plaintiff paid \$10,000 in legal fees in November, in connection with a successful infringement suit on its patent.
6. The Johnson Company traded its old machine with an original cost of \$7,400 and a book value of \$4,000 plus cash of \$8,000 for a new one that had a fair value of \$10,000.

Required:

Prepare journal entries to record each of the above transactions.

P 10-6

Nonmonetary
exchange

• 106

Southern Company owns a building that it bought. The building's fair value is \$1,400,000 and its book value is \$400,000 (original cost of \$2,400,000 less accumulated depreciation of \$2,000,000). Southern also owns another building owned by the Eastern Company. The building's fair value is \$650,000 and its book value is \$400,000 (original cost of \$1,000,000 less accumulated depreciation of \$650,000). Eastern also owns a piece of land with a fair value of \$750,000. Prepare the exchange.

Required:

Prepare the journal entries to record the exchange on the books of both Southern and Eastern.

P 10-7

Nonmonetary
exchange

• 106

On September 3, 2006, the Roberts Company exchanged operational assets with Pflaster Corporation. The facts of the exchange are as follows:

| | Roberts' Asset | Pflaster's Asset |
|--------------------------|----------------|------------------|
| Original cost | \$720,000 | \$140,000 |
| Accumulated depreciation | 55,000 | 63,000 |
| Fair value | 75,000 | 70,000 |

To equalize the exchange, Pflaster paid Roberts \$5,000 in cash.

Required:

Record the exchange for both Roberts and Pflaster.

P 10-8

Interest capitalization;
specific interest
method

• 107

Excel

On January 1, 2006, the Mason Manufacturing Company began construction of a building to be used as its office headquarters. The building was completed on September 30, 2007.

Expenditures on the project were as follows:

| | |
|------------------|-------------|
| January 1, 2006 | \$1,000,000 |
| March 1, 2006 | 600,000 |
| June 30, 2006 | 800,000 |
| October 1, 2006 | 600,000 |
| January 31, 2007 | 200,000 |
| April 30, 2007 | 580,000 |
| August 31, 2007 | 900,000 |

On January 1, 2006, the company obtained a \$1-million construction loan with a 10% interest rate. The loan was outstanding all of 2006 and 2007. The company's other interest-bearing debt included currency with a balance of \$5,000,000 and \$6,000,000 at interest rates of 6% and 9%, respectively. Both loans were outstanding during all of 2006 and 2007. The company's fiscal year-end is December 31.

Required:

1. Calculate the amount of interest that Mason should capitalize in 2006 and 2007 using the specific interest method.
2. What is the total cost of the building?
3. Calculate the amount of interest expense that will appear in the 2006 and 2007 income statements.

(This is a variation of the previous problem, modified to focus on the weighted-average interest method.)

Required:

Refer to the facts in Problem 10-8 and answer the following questions.

Calculate the amount of interest that Mason should capitalize in 2006 and 2007 using the weighted-average method.

2. What is the total cost of the building?
3. Calculate the amount of interest expense that will appear in the 2006 and 2007 income statements.

P 10-9

Interest capitalization;
weighted-average
method

• 107

Excel

10-4 Research and Development

LO 3

In 2006, Starbuck's Corporation began work on three research and development projects. One of the projects was completed and commercial production of the developed product began in December. The company's fiscal year ends at December 31. All of the following 2006 expenditures were included in the R&D expense account:

| | |
|---|--------------------|
| Salaries and wages for: | |
| lab research | \$ 300,000 |
| design and construction of original machine prototype | 16,000 |
| Quality control during commercial production | 20,000 |
| Materials and supplies consumed for: | |
| lab research | 60,000 |
| Construction of production prototype | 34,000 |
| Purchase of equipment | 600,000 |
| Patenting and legal costs for completed project | 40,000 |
| Payments to others for research | 120,000 |
| Total | \$1,210,000 |

\$200,000 of equipment was purchased solely for use in one of the projects. After the project is completed, the equipment will be abandoned. The remaining \$400,000 of equipment will be used on future R&D projects. The useful life of equipment is five years. Assume that all of the equipment was acquired at the beginning of the year.

Required

Prepare journal entries to reflect the appropriate treatment of the expenditures.

BROADEN YOUR PERSPECTIVE



Apply your critical thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Case 10-1 Operational Assets

LO 3

LO 4

LO 5

LO 6

LO 7

LO 8

LO 9

LO 10

LO 11

LO 12

LO 13

LO 14

LO 15

LO 16

LO 17

LO 18

LO 19

LO 20

LO 21

LO 22

LO 23

LO 24

LO 25

LO 26

LO 27

LO 28

LO 29

LO 30

A company may acquire operational assets in exchange for a deferred payment contract by exchanging other operational assets. In the acquisition of these methods:

Required

1. Identify six types of assets that should be capitalized as the cost of a parcel of land. For your answer assume that the land has an area of 100 acres that is to be developed if the immediate future in order that a new building can be constructed on the site.

2. At what amount should a company record an operational asset acquired in exchange for a deferred payment contract?

3. In general, at what amount should operational assets received in exchange for other non-monetary assets be valued? Specifically, at what amount should a company value a new machine acquired by exchanging an older, similar machine and paying cash?

AICPA, adapted

Your client, Hazelton Mining, recently entered into an agreement to obtain the rights to operate a coal mine in West Virginia for \$15 million. Hazelton incurred development costs of \$5 million in preparing the mine for extraction, which began on July 1, 2016. The contract requires Hazelton to restore the land and surrounding area to its original condition after extraction is complete in three years.

The contract requires Alice Company, is not sure how to account for the restoration costs and has asked your advice. Alice is aware of a recent accounting pronouncement addressing this issue, but is not sure of the proper amount. She has three options: (a) the present cash outflow for the restoration costs in four possibilities:

| Cash outflow | Probability |
|--------------|-------------|
| \$3 million | 7% |
| \$4 million | 33% |
| \$5 million | 25% |
| \$6 million | 25% |

AICPA, adapted

Alice also informs you that the company's credit-adjusted risk-free interest rate is 9%. Before referring to Alice, you need to research the issue.

4-11-210

1. Obtain the original FASB Standard on accounting for asset retirement obligations. You might access through FARS, the FASB Financial Accounting Research System, from your school account, or the Internet. Explain the basic structure of asset retirement obligations.
2. Determine the capitalized cost of the coal mine.
3. Prepare a liability liability over its useful life (depreciation) over the mine.
4. Determine the capitalized cost of the coal mine and the liability for the coal mine.
5. Prepare a liability liability over its useful life (depreciation) over the mine.
6. Describe to Alice the necessary disclosure requirements for the obligation.

Judgment Case 10-3 Self-constructed assets

• LO2

Chilton Peripherals manufactures printers, scanners, and other computer peripheral equipment. In the past, the company purchased equipment used in manufacturing from an outside vendor. In March 2004, the company decided to design and build equipment to replace some obsolete equipment. A section of the manufacturing plant was set aside to design and produce the equipment. Additional personnel were hired for the project. The equipment was completed and ready for use in September.

Required:

1. In general, what costs should be capitalized for a self-constructed asset?
2. Discuss two alternatives for the inclusion of overhead costs in the cost of the equipment constructed by Chilton. Which alternative is generally accepted for financial reporting purposes?
3. Under what circumstances, if any, would interest be included in the cost of the equipment?

Judgment Case 10-4 Interest capitalization

• LO2

2-10-24 provided guidelines for the use of interest in the calculation of an expenditure for capitalization.

1. What assets qualify for interest capitalization? What assets do not qualify for interest capitalization?
2. Over what period should interest be capitalized?
3. Explain the concept of "weighted-average" interest rate.
4. Explain the two methods that could be used to determine the appropriate interest rate(s) to be used in capitalizing interest.
5. Describe the three steps used to determine the amount of interest capitalized during a reporting period.

Research Case 10-5 Goodwill

• LO1

Accounting for purchased goodwill has been a controversial issue for many years. In the United States, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards (SFAS) No. 141, "Business Combinations," which requires the recognition of goodwill as an asset. The FASB also issued SFAS No. 142, "Goodwill and Intangible Assets," which requires the recognition of goodwill as an asset.

Required:

1. In your library or from some other source, locate the indicated article in Accounting magazine, September 1998.
2. Does goodwill meet the FASB's definition of an asset?
3. What are the key concerns of those who believe goodwill is not an asset?

Real World Case 10-6 Property, plant, and equipment: intangibles

• LO1

United Fruit Company reported the following amounts in the accompanying balance sheets for the ended December 31, 2004 and 2003.

| | In millions | |
|-------------------------------------|-------------|---------|
| | 2004 | 2003 |
| Property, plant, and equipment, net | \$6,047 | \$6,007 |
| Intangible assets, net | 712 | 981 |

In addition to the 2004 statement of cash flows, reported the following items (in millions):

| | |
|-------------------------------------|-------|
| Depreciation and amortization | \$893 |
| Additions to property and equipment | 735 |
| Proceeds from sale of equipment | 341 |

Required:

Assuming that no new intangible assets were acquired or sold during 2004, what was the gain or loss recognized in 2004 from the sale of property, plant, and equipment?

Athens Paper Corporation acquired for cash 100% of the outstanding common stock of Georgia, Inc., a supplier of wood pulp. The purchase price of \$4,500,000 was significantly higher than the book value of Georgia's net assets (assets less liabilities) of \$2,800,000. The Athens controller recorded the difference of \$1,700,000 as an asset, goodwill.

Discuss the meaning of the term goodwill.

2. In what situation would the Athens controller be correct in her valuation of goodwill?

Prior to 1979, accepted practice was for companies to either expense or capitalize R&D costs. In 1979, the FASB issued SFAS 2 which says: regular, all research and development costs to be charged to expense when incurred. This was a controversial standard, opposed by many companies who preferred delaying the rising impact of these expenses until later years when presumably the expenditures bear fruit.

Several research studies have been conducted to determine if the standard had any impact on the behavior of companies. One interesting finding was that prior to SFAS 2, companies that expensed R&D costs were significantly larger than those companies that capitalized R&D costs.

1. In a 10-minute logic to deciding to require all companies to expense R&D costs in the period

2. Identify possible reasons to explain why, prior to SFAS 2, companies that expensed R&D costs were significantly larger than those companies that capitalized R&D costs.

Cloval, Inc., a biotechnology company, developed and patented a diagnostic product called "Trouver." Cloval purchased some research equipment to be used exclusively for Trouver and subsequent research projects. Cloval then defended a legal challenge to its Trouver patent, and began production and marketing operations for the

corporate headquarters' costs were allocated to Cloval's research division as a percentage of the division's salaries.

Required:

How should the equipment purchased for Trouver be reported in Cloval's income statements and statements of financial position?

1. Describe the accounting treatment of research and development costs and consider whether this is consistent with the matching principle. What is the justification for the accounting treatment of research and development costs?

3. How should corporate headquarters' costs allocated to the research division be classified in Cloval's financial statements? Why?

4. How should the legal expenses incurred in defending Trouver's patent be reported in Cloval's financial statements?

FAICPA adopted

The focus of this case is the dilemma described in Case 10-9. What is the appropriate accounting for R&D costs? Do you believe that (1) capitalization is the correct treatment of R&D costs, (2) expensing is the correct treatment of R&D costs, or (3) that companies should be allowed to choose between expensing and capitalization?

Required:

Develop a list of arguments in support of your view prior to the class session for which the case is assigned. Do not be influenced by the rationales required by the FAICPA. Base your opinion on the conceptual merits of the options.

2. In class, your instructor will pair you (and everyone else) with a classmate who also has independently developed a view.

a. You will be given three minutes to argue your view to your partner. Your partner likewise will be given three minutes to argue his or her view to you. During these three-minute presentations, the listening partner is not permitted to speak.

b. Then after each person has had a turn attempting to convince his or her partner, the two partners will have a three-minute discussion in which they will decide which alternative is more convincing and arguments will be merged into a single view for each pair.

3. After the allotted time, a spokesperson for each of the class alternatives will be selected by the instructor. Each spokesperson will relay arguments from the class as to the appropriate alternative. The class will then discuss the merits of the alternatives and attempt to reach a consensus view, though a consensus is not necessary.

Intangible Assets

Acquisition Costs

• 151

Research and development

• 151

Costs

Research and development

• 151

Comparison of

operational assets valuation in the Netherlands and the United States

• 151

Economic Resources

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for students to develop their understanding of the economic resources of a company. The case also provides an opportunity for students to develop their understanding of the economic resources of a company.

Case 11.1: Fixed Assets (in part)

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for students to develop their understanding of the economic resources of a company. The case also provides an opportunity for students to develop their understanding of the economic resources of a company.

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40-24 (page)

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Intangible Fixed Assets (in part)

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for students to develop their understanding of the economic resources of a company. The case also provides an opportunity for students to develop their understanding of the economic resources of a company.

Fixed Assets (in part)

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for students to develop their understanding of the economic resources of a company. The case also provides an opportunity for students to develop their understanding of the economic resources of a company.

Required

On the basis of the information disclosed provide, compare operational asset valuation in the Netherlands with that in the United States.

Case 10-35

National Network

National Network is a computer network headquartered in Santa Clara, California. It is a global vendor-independent network. The company's 2004 fixed-asset turnover ratio using the average book value of property, plant, and equipment (PP&E) as the denominator, was approximately 2.87. Additional information taken from the company's 2004 annual report is as follows:

| | % in millions |
|--------------------------------------|---------------|
| Book value of PP&E—beginning of 2004 | \$681 |
| Purchases of PP&E during 2004 | 215 |
| Depreciation of PP&E for 2004 | 196 |

There were no dispositions of PP&E during 2004.

Required

1. How is the fixed-asset turnover ratio computed? How would you interpret National's ratio of 2.87?
2. Use the return dispersion measure National's net sales for 2004.
3. Obtain annual reports from three corporations in the same primary industry as National (Global Corporation and Advanced Micro Devices are two well-known corporations), and compare the management of each company's investment in property, plant, and equipment.

Note: You can obtain copies of annual reports from your library, from friends who are shareholders, from the investor relations department of the corporations, from a friendly stockbroker, or from EDGAR (Electronic Data Gathering, Analysis, and Retrieval) on the Internet (www.secdatabase.com) through EdgarSearch at www.edgarsearch.com.

Case 10-36

Elegon Software

33

The Elegon Software Company recently completed the development and testing of a new software program that provides the ability to transfer data from among a variety of operating systems. The company believes this product will be quite successful and capitalized all of the costs of designing, developing, coding, and testing the software. These costs will be amortized over the expected useful life of the software on a straight-line basis.

1. Was Elegon correct in its treatment of the software development costs? Why?
2. Explain the appropriate method for determining the amount of periodic amortization for any capitalized software development costs.

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. (Some foreign companies file voluntarily.) Form 10-K or 10-KSB, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.

Required

1. Access EDGAR on the Internet. The web address is www.sec.gov/edgarsearch/edgarsearchpageglobal.htm. (Note: www.edgarsearch.com makes the process of accessing data from EDGAR easier.)
2. Search for Home Depot, Inc. Access the 10-K filing for the most recent fiscal year. Search or scroll to find the financial statements and related notes.
3. Answer the following questions related to the company's operational assets.
 - a. Name the different types of operational assets the company lists in its balance sheet under property, plant, and equipment.
 - b. How much cash was used for the acquisition of property, plant, and equipment during the year?
 - c. What was the amount of interest capitalized during the year?
 - d. Compute the fixed-asset turnover ratio for the fiscal year.

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix B located at the back of this text.

Required

1. What categories of operational assets does FedEx report in its 2004 balance sheet?
2. How much interest did FedEx capitalize in 2004?
3. How much cash was used in 2004 to purchase property and equipment? How does this compare with purchases in previous years?
4. The fixed-asset turnover ratio for United Parcel Service, FedEx's chief competitor, for the year ended December 31, 2004, is 2.43. How does this compare with FedEx's ratio? What is the ratio intended to measure?

Case 10-38

FedEx Corporation

34

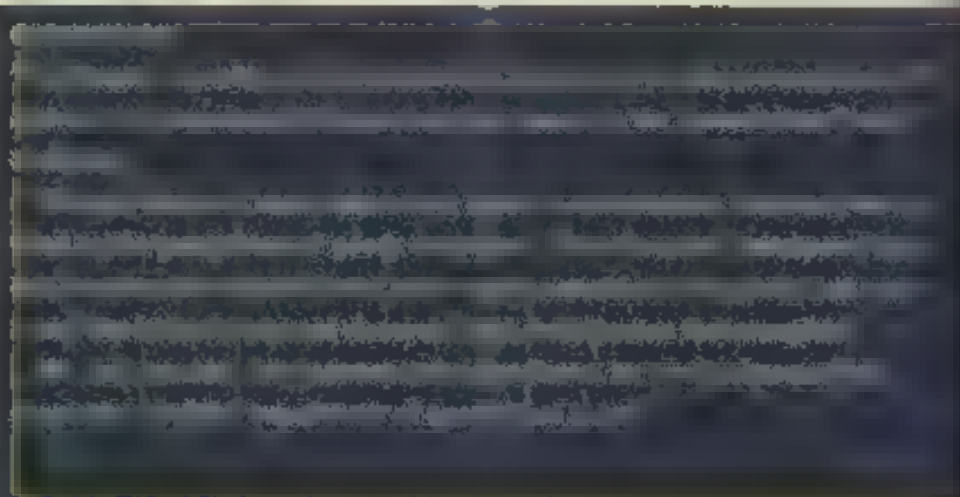
35

FedEx Corporation

11

CHAPTER

Operational Assets: Utilization and Impairment



After studying the chapter you should be able to:

- LO1 Explain the impact of depreciation on the financial statements of operational assets.
- LO2 Determine periodic depreciation using both time-based and activity-based methods.
- LO3 Calculate the periodic depletion of a natural resource.
- LO4 Calculate the periodic amortization of an intangible asset.
- LO5 Explain the appropriate accounting treatment to use when a change is made in the service life or residual value of a depreciable asset.
- LO6 Explain the appropriate accounting treatment to use when a change in depreciation, amortization or depletion method is made.
- LO7 Explain the appropriate treatment required when an impairment loss for an operational asset is discovered.
- LO8 Identify conditions that may lead to a significant impairment of the value of operational assets and describe the required accounting procedures.
- LO9 Discuss the accounting treatment of repairs and maintenance, additions, improvements and rearrangements to operational assets.

FINANCIAL REPORTING CASE



What's in a Name?

"I don't understand this at all," your friend Penny says, frowning. "Depreciation, depletion, amortization—what's the difference? Aren't they all the same thing?" Penny and you are part of a class team working on a case involving a fictitious corporation, formerly known as Boise Cascade Corporation. Part of the project involves comparing reporting methods over a three-year period. "Look at these disclosure notes from last year's annual report. Besides mentioning those three terms, they also talk about a charge for as-

set impairment. How is that different?" Penny showed you the disclosure notes.

Property and Equipment (in part)

Most of our paper and wood products manufacturing facilities determine depreciation by the units-of-production method. Other operations use the straight-line method over the estimated useful lives of the assets.

For our long-term timberland properties, we calculate depletion costs at the end of each year based on the total estimated volume of timber that is mature enough to be harvested and processed. We amortize logging roads over their expected useful lives or as related timber is harvested.

Long-Lived Asset Impairment (in part)

We account for the impairment of long-lived assets in all of our segments in accordance with SFAS No. 144, Accounting for the Impairment or Disposal of Long-Lived Assets. An impairment of a long-lived asset exists when the carrying value of an asset exceeds its fair value and when the carrying value is not recoverable through future operations. We review the carrying value of long-lived assets for impairment when events or changes in circumstances indicate that the carrying amount of assets may not be recoverable. In December, we recorded a \$14.7 million pretax charge for the write-down of impaired assets at our plywood and lumber operations in Yakima, Washington.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your responses to the solution provided at the end of the chapter.

QUESTIONS

1. Is Penny correct? Do the terms depreciation, depletion, and amortization all mean the same thing? (page 504)
2. What is the units-of-production method? How is it used by this company? (page 508)
3. Explain how asset impairment differs from depreciation, depletion, and amortization. How are impairment tests measured? How do they differ from impairment tests used by other companies? (page 517)

PART A

DEPRECIATION, DEPLETION, AND AMORTIZATION

Cost Allocation—an Overview

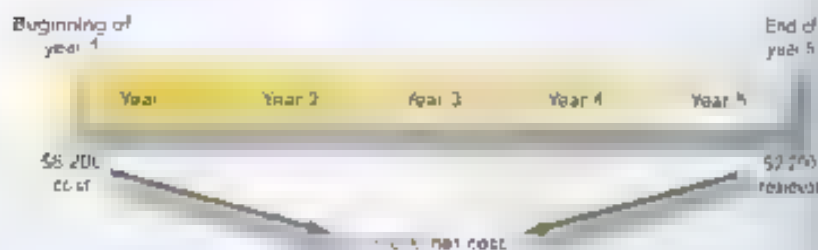
► 10

Operational assets are purchased with the expectation that they will provide future benefits usually for several years. Specifically, they are acquired to be used as part of the revenue-generating operations. Logically, then, the costs of acquiring the assets should be allocated as an expense during the reporting periods benefited by their use. That is, their costs are matched with the revenues they help generate.

Let's suppose that a company purchases a used delivery truck for \$8,200 to be used in delivering product to customers. The company estimates that five years from the acquisition date the truck will be sold for \$2,200. The cost of using the truck during the five-year period, \$6,000 (\$8,200 - 2,200). The question is portrayed in Graphic 11.1.

GRAPHIC 11.1

Cost Allocation for an Operational Asset



Theoretically, the matching principle requires that the \$6,000 be allocated to the five individual years of asset use in direct proportion to the role the asset played in revenue production. However, very seldom is there a clear-cut relationship between the use of operational assets and revenue production. In other words, we can't tell precisely the portion of the benefits of the asset that was consumed in any particular period. As a consequence, we must resort to arbitrary allocation methods to approximate a matching of expense with revenue. Contrast this situation with the \$24,000 prepayment of one year's rent on an office building at \$2,000 per month. In that case, we know precisely that the benefits of the asset, prepaying rent, are consumed at a rate of \$2,000 per month.

When a tangible operational asset is used, known as depreciation for plant and equipment, depletion for natural resources, and amortization for intangibles. The process often is confused with measuring a decline in fair value of an asset. For example, let's say our delivery truck purchased for \$8,200 can be sold for \$5,000 at the end of one year but we must keep it for the full five-year estimated life. It has experienced a decline in value of \$3,200 (\$8,200 - 5,000). However, *depreciation is a process of cost allocation, not valuation*. We would not record depreciation expense of \$3,200 for year one of the truck's life. Instead, we would distribute the cost of the asset, less any anticipated residual value, over the estimated useful life in a systematic and rational manner that attempts to match revenues with the use of the asset, not the decline in its value. After all, the truck is purchased to be used in generating sales, not to be sold.

The specific accounting treatment depends on the intended use of the asset. For assets used in the manufacture of a product, for example, depreciation, depletion, or amortization is considered a product cost to be included as part of the cost of inventory. Eventually, when the product is sold, it becomes part of the cost of goods sold. For assets *not* used in production, primarily plant and equipment, and certain intangibles used in the selling and administrative functions of the company, periodic depreciation or amortization is reported as an expense in the income statement. You might recognize this distinction as the difference between a product cost and a period cost. When a product cost is reported as an expense of goods sold, it depends on when the product is sold; when a period cost is reported as an expense, it depends on the reporting period in which it is incurred.

FINANCIAL REPORTING CASE

Q1 503

1. What is the difference between depreciation, depletion, and amortization?

2. How is depreciation, depletion, and amortization for an operational asset used in the manufacture of a product included in the cost of the product?

Measuring Cost Allocation

The process of cost allocation for operational assets requires that three factors be established at the time the asset is put into use. These factors are:

1. **Service life**—the estimated use that the company expects to receive from the asset.
2. **Allocation base**—the value of the usefulness that is expected to be consumed.
3. **Allocation method**—the pattern in which the usefulness is expected to be consumed.

Consider these one at a time.

SERVICE LIFE

The **service life**, or **useful life**, of an operational asset is the amount of use that the company expects to obtain from the asset before disposing of it. This use can be expressed in units of output or units of activity. For example, the estimated service life of a delivery truck could be expressed in terms of years or in terms of the number of miles that the company expects the truck to be driven before disposition. We use the terms **service life** and **useful life** interchangeably throughout the chapter.

Physical life provides the upper bound for service life of tangible operational assets. Physical life will vary according to the purpose for which the asset is acquired and the environment in which it is operated. For example, a diesel-powered electric generator may last for many months if used only as an emergency backup or for only a few years if it is used regularly. The service life of a tangible operational asset may be less than physical life for a variety of reasons. For example, the expected rate of technological change may shorten service life. Companies are expected to develop new technologies that are more efficient; the company's own asset for a period of time much shorter than physical life. Likewise, if the company's product is a mineral that requires new methods, the machinery and equipment used to produce products may be useful only for as long as its output can be sold profitably. A mineral deposit might be projected to contain 4 million tons of a mineral, but it might be economically feasible with existing extraction methods to mine only 2 million tons of valuable assets. Legal or contractual life often is a limiting factor. For instance, a patent might be capable of providing enhanced profitability for 10 years, but the legal life of a patent is 4 years.

An agreement between two or more parties may shorten the period of an asset's usefulness below its physical or contractual life. For example, a company may lease a piece of using its delivery trucks for a three-year period and then trading the trucks for new models.

Companies quite often disclose the range of service lives for different categories of operational assets. For example, Graphic 11-2 shows how IBM Corporation disclosed its service lives in a note accompanying recent financial statements.

| Category | Useful Life (Years) |
|------------------------|---------------------|
| Buildings | 30 to 40 |
| Leasehold improvements | 5 to 10 |
| Equipment | 3 to 10 |
| Software | 3 to 5 |
| Other | 3 to 10 |

Graphic 11-2
IBM Corporation's
Disclosure of Service
Lives

Depreciation and Amortization (in part)

Our assets are divided into depreciable properties, plant, and equipment, buildings, 30 to 40 years; leasehold improvements, 5 to 10 years; equipment, 3 to 10 years; and computer equipment, 3 to 5 years.

Graphic 11-2

Service Life
Disclosure
International Business
Machines Corporation

ALLOCATION BASE

The amount of cost to be allocated over an asset's service life is called its **allocation base**. The amount is the difference between the initial value of the asset at its acquisition (its **cost**) and its **residual value**. Residual or **salvage value** is the amount the company expects to receive for the asset at the end of its service life less any anticipated disposal costs. In our delivery truck example above, the allocation base is \$6,000 (\$8,200 cost less \$2,200 anticipated residual value).

When estimating residual value can be estimated by referring to a company's prior experience or to publicly available information concerning resale values of various types of

| Category | Allocation Base |
|------------------------|------------------------------------|
| Buildings | Cost less estimated residual value |
| Leasehold improvements | Cost less estimated residual value |
| Equipment | Cost less estimated residual value |
| Software | Cost less estimated residual value |
| Other | Cost less estimated residual value |

Graphic 11-3
IBM Corporation's
Allocation Base

assets. For example, if a company intends to trade its delivery trucks in three years for new models, approximations of the three-year residual value for that type of truck can be gained from used truck blue books.

However, estimating residual value for many operational assets can be very difficult due to the uncertainty about the future. For this reason, along with the fact that residual value can be ascertained only approximately, many companies simply assume a residual value of zero for plants, machinery, and other fixed assets.

The depreciation method used should be systematic and rational and correspond to the pattern of asset value

ALLOCATION METHOD

In determining how much cost to allocate to each period of an asset's use, a method should be selected that corresponds to the nature of the asset and the user's requirements. *APB-2* states: "The chosen method should allocate the asset's cost 'as equitably as possible to the periods during which services are obtained from [its] use.'" The bulletin further specifies that methods should produce a cost allocation in a systematic and rational manner. The objective is to try to allocate cost to the period in an amount that is proportional to the amount of benefits generated by the asset during the period relative to the total benefits provided by the asset during its life.

In practice, there are two general approaches that attempt to obtain this systematic and rational allocation. The first approach allocates the cost base according to the *passage of time*. Methods following this approach are referred to as *time-based methods*. The second approach allocates an asset's cost base using a measure of the asset's *input or output*. This is the *activity-based method*. We compare these approaches first in the context of depreciation. Later we see that depletion of natural resources typically follows an activity-based approach and the amortization of intangibles typically follows a time-based approach.

Depreciation of Operational Assets

- **LO2** To demonstrate and compare the most common depreciation methods, we refer to the data been described in Illustration 11-1.

Illustration 11-1 Depreciation Methods

The Tugger Manufacturing Company purchased a machine for \$250,000. The company expects the service life of the machine to be five years. During its lifetime, it is expected that the machine will produce 140,000 units. The estimated residual value is \$40,000. The machine was disposed of after five years of use. The following table shows the units produced during the five years of the asset's life.

| Year | Units Produced |
|-------|----------------|
| 1 | 24,000 |
| 2 | 36,000 |
| 3 | 46,000 |
| 4 | 8,000 |
| 5 | 16,000 |
| Total | 130,000 |

TIME-BASED DEPRECIATION METHODS

Straight-Line Method. By far the most easily understood and widely used depreciation method is *straight line*. By this approach, an equal amount of depreciable base is allocated to each year of the asset's service life. The depreciable base is simply divided by the number of years in the asset's life to determine annual depreciation. In our illustration, the straight-line annual depreciation is \$42,000, calculated as follows.

| | |
|-------------------------|-----------|
| Cost | \$250,000 |
| Less: Residual value | (40,000) |
| Depreciable base | \$210,000 |
| Divide by: Service life | 5 years |
| Annual depreciation | \$42,000 |

¹"Statement of Principles of Accounting Fundamentals Bulletin," Accounting Research Bulletin No. 43 (New York: AICPA, 1936).

$$\frac{\$250,000 - \$0}{5 \text{ years}} = \$50,000 \text{ per year}$$

Accelerated Methods. Using the straight-line method implicitly assumes that the benefits derived from the use of the asset are the same each year. In some situations it might be more appropriate to assume that the asset will provide greater benefits in the early years of its life than in the later years. If these benefits are more appropriate, then the depreciation should be accelerated with a depreciation method that results in higher depreciation in the early years of the asset's life and lower depreciation in the later years. An accelerated depreciation method would be appropriate when the benefits from the asset are approximately equal over the asset's life, but repairs and maintenance costs increase significantly in later years. The early years incur higher depreciation and lower repairs and maintenance expense, while the later years have lower depreciation and higher repairs and maintenance. Two commonly used ways to achieve such a declining pattern are the sum-of-the-years'-digits method and declining-balance methods.

Sum-of-the-years'-digits method. The sum-of-the-years'-digits (SYD) method has its foundation other than the fact that it accomplishes the objective of accelerating depreciation in a systematic manner. This is achieved by multiplying the depreciable base by a fraction that decreases each year and results in depreciation that decreases by the same amount each year. The denominator of the fraction remains constant and is the sum of the digits from 1 to n , where n is the number of years in the asset's service life. For example, if there are five years in the service life, the denominator is the sum of 1, 2, 3, 4, and 5, which equals 15. The numerator decreases each year; it begins with the value of n in the first year and decreases by one each year until it equals one in the final year of the asset's estimated service life. The annual fractions for an asset with a five-year life are $4/5$, $3/5$, $2/5$, $1/5$, and $0/5$. We can calculate depreciation for the five years of the machine's life using the sum-of-the-years'-digits method in Illustration 11-1A.

| Year | Depreciable Base | \times | Depreciation Rate per Year | $=$ | Depreciation | Book Value End of Year |
|-------|------------------|----------|----------------------------|-----|--------------|------------------------|
| 1 | \$250,000 | | $4/5$ | | \$200,000 | \$50,000 |
| 2 | 250,000 | | $3/5$ | | 150,000 | 100,000 |
| 3 | 250,000 | | $2/5$ | | 100,000 | 150,000 |
| 4 | 250,000 | | $1/5$ | | 50,000 | 200,000 |
| 5 | 250,000 | | $0/5$ | | 0 | 250,000 |
| Total | | | | | \$400,000 | |

As an alternative, an accelerated depreciation method can be used to calculate depreciation expense. The SYD method is an example of an accelerated method.

ILLUSTRATION 11-1A
Sum-of-the-Years'-Digits Depreciation

Declining-balance methods. As an alternative, an accelerated depreciation pattern can be achieved by various declining-balance methods. Rather than multiplying a constant balance by a declining fraction as we do in SYD depreciation, we multiply a constant fraction by the depreciable base each year. Specifically, we multiply a constant percentage rate times the depreciable book value (cost less accumulated depreciation) of the asset, *new depreciable base*, at the beginning of the year. Because the rate remains constant while the book value decreases, annual depreciation is less each year. The rates used are multiples of the straight-line rate. The straight-line rate is simply one divided by the number of years in the asset's service life. For example, the straight-line rate for an asset with a five-year life is one-fifth, or 20%. Various multiples used in practice are 150%, 200%, or 300% of the straight-line rate. When 200% is used as the multiplier, the

declining-balance method is called the double-declining-balance method. In this method, the depreciable base, by an amount equal to the multiplier of the straight-line rate.

$$\frac{\$250,000 - 40,000}{140,000 \text{ units}} = \$1.50 \text{ per unit}$$

Each unit produced will require an additional \$1.50 of depreciation to be recorded. As we determine service life based on units produced rather than in years, depreciation is not measured by time. However, total depreciation is constrained by the asset's cost and the expected residual value. In our illustration, suppose the company intended to dispose of the asset at a cost of \$40,000. Depreciation in the year 5 is \$1.50 per unit, or \$7.50. A production of 5,000 units would be necessary to bring the book value of the asset down to \$40,000. Depreciation for the five years is determined in Illustration 11-1C using the unit-production method. Notice how the last year's depreciation expense is a plug amount that reduces book value to the expected residual value.

| Year | Units Produced | Depreciation Rate per unit | = | Depreciation | Book Value End of Year |
|-------|----------------|----------------------------|---|--------------|------------------------|
| 1 | 24,000 | \$1.50 | | \$36,000 | \$24,000 |
| 2 | 36,000 | 1.50 | | \$54,000 | 60,000 |
| 3 | 26,000 | 1.50 | | \$39,000 | 91,000 |
| 4 | 8,000 | 1.50 | | 12,000 | 79,000 |
| 5 | 16,000 | | | \$24,000* | 40,000 |
| Total | 100,000 | | | \$210,000 | |

* Plug amount to bring book value to expected residual value.

the units of production method is calculated as follows: the cost of the asset is \$250,000 and the expected residual value is \$40,000. The difference is \$210,000, which is divided by the total units produced (100,000) to arrive at the depreciation rate of \$2.10 per unit.

ILLUSTRATION 11-1C
Units-of-Production
Depreciation

MANUFACTURERS' PERSPECTIVE Selecting a Depreciation Method

Illustration 11-1D compares periodic depreciation calculations using each of the alternatives discussed and illustrated.

| Year | Straight Line | Sum-of-the-Years Digits | Double-Declining Balance | Units of Production |
|-------|---------------|-------------------------|--------------------------|---------------------|
| 1 | \$42,000 | \$70,000 | \$140,000 | \$36,000 |
| 2 | 42,000 | 56,000 | 93,333 | 54,000 |
| 3 | 42,000 | 42,000 | 46,667 | 69,000 |
| 4 | 42,000 | 28,000 | 0 | 2,000 |
| 5 | 42,000 | 14,000 | 0 | 39,000 |
| Total | \$210,000 | \$210,000 | \$210,000 | \$210,000 |



ILLUSTRATION 11-1D
Comparison of
Various Depreciation
Methods

All methods provide the same total depreciation over the asset's life.

Theoretically, using an activity-based depreciation method provides a better matching of costs and expenses. Clearly, the productivity of a plant asset is more closely associated with the use of the asset than with the mere passage of time. Also, these methods allow for patterns of depreciation to correspond with the random patterns of asset use. However, activity-based methods require an identifiable measure of productivity. Even for machinery, which is an identifiable measure of productivity, it is not always easy to determine each period's usage. In fact, it is so difficult to measure the passage of time in these methods that most companies use the double-declining method. Exhibit 11-1 shows the results of a recent survey of depreciation methods used by large U.S. companies.

As you can see, the double-declining method is the most popular. The straight-line method is the second most popular. The units-of-production method is the least popular.

GRAPHIC 11-3

Use of Various
Depreciation Methods

| Depreciation Method | Number of Companies |
|------------------------------------|---------------------|
| Straight-line | 26 |
| Double-declining-balance | 22 |
| Sum-of-the-years'-digits | 1 |
| Modified accelerated cost-recovery | 41 |
| and production | 30 |
| Other | 4 |

Why do so many companies use a straight-line method as opposed to other time-based methods? Many companies perhaps consider the benefit derived from the amount of plant assets to be realized approximately evenly over those assets' useful lives. Certainly a motivating factor is that straight-line is the easiest method to understand and apply.

Another motivation is the positive effect on reported income. Straight-line depreciation produces a higher net income than accelerated methods in the early years of an asset's life. In Chapter 8 we pointed out that reported net income can affect bonuses paid to management or debt agreements with lenders.

Combining with the desire to report higher profits is the desire to reduce taxes by reducing taxable income. An accelerated method serves this objective by reducing taxable income more in the early years of an asset's use than straight-line. You probably recall a similar discussion from Chapter 8 in which the benefits were described of using the LIFO inventory method during periods of increasing costs. However, remember that the LIFO conformity rule requires companies using LIFO for income tax reporting to also use LIFO for financial reporting. *No such conformity rule exists for depreciation methods.* Income tax regulations allow firms to use different approaches in computing depreciation in their tax returns and their financial statements. The method used for tax purposes is therefore not a constraint on the choice of depreciation methods for financial reporting. As a result, many companies use the straight-line method for financial reporting and the Internal Revenue Service's modified accelerated method discussed in Appendix 11A for income tax purposes. For example, Graphic 11-4 shows Merck & Co.'s depreciation policy as reported in a disclosure note accompanying recent financial statements.

GRAPHIC 11-4

Depreciation Method
Disclosure: Merck &
Co.

Summary of Accounting Policies (in part):

Depreciation

Depreciation is recorded over the useful lives of the assets, principally using the straight-line method. For assets that are subject to obsolescence, the accelerated method is used.

It is not unusual for a company to use different depreciation methods for different types of assets. For example, Graphic 11-5 just uses the *International Paper Company* disclosure policy contained in a note accompanying recent financial statements.

PERSPECTIVE

In the United States, income tax regulations allow firms to use different approaches in computing depreciation in their tax returns and financial statements. Internationally, a number of countries, such as Japan, depreciation rates for financial reporting must be the same as those used for income tax purposes. International Financial Reporting Standards require depreciation to be determined on a systematic basis over the useful life of an asset, as in the United States.

Summary of Accounting Policies (in part): Plants, Properties, and Equipment

Plants, properties, and equipment are stated at cost less an accumulated depreciation. The straight-line depreciation method is used for buildings and leasehold improvements, and the declining-balance method is used for machinery and equipment.

GRAPHIC 11-5

Depreciation Method
Disclosure—
International Paper
Company

CONCEPT REVIEW EXERCISE

The Sprague Company purchased a manufacturing machine on January 1, 2006, at a net cost of \$130,000. The machine is four-year useful life. The company estimates that the machine will produce 25,000 units. Sprague also estimates that the machine will run for 25,000 hours during its useful life. The company's fiscal year ends on December 31.

DEPRECIATION METHODS

Compute depreciation for 2006 through 2009 using each of the following methods:

a. Straight-line

b. Units-of-the-years'-digits

c. Double-declining-balance

Units of production (using machine hours). Actual production was as follows:

| Year | Machine Hours |
|------|---------------|
| 2006 | 6,000 |
| 2007 | 8,000 |
| 2008 | 5,000 |
| 2009 | 7,000 |

a. Straight-line

$$\frac{\$130,000 - \$10,000}{4 \text{ years}} = \$30,000 \text{ per year}$$

Sum of the years'-digits

| Year | Depreciable Base | × | Depreciation Rate per Year | = | Depreciation |
|-------|------------------|---|----------------------------|---|------------------|
| 2006 | \$120,000 | × | 1/4 | = | \$30,000 |
| 2007 | 100,000 | × | 2/4 | = | 50,000 |
| 2008 | 100,000 | × | 3/4 | = | 30,000 |
| 2009 | 100,000 | × | 4/4 | = | 20,000 |
| Total | | | | | <u>\$130,000</u> |

b. Double-declining-balance

| Year | Book Value Beginning of Year | × | Depreciation Rate per Year | = | Depreciation | Book Value End of Year |
|-------|------------------------------|---|----------------------------|---|------------------|------------------------|
| 2006 | \$130,000 | × | 50% | = | \$65,000 | \$65,000 |
| 2007 | 65,000 | × | 50 | = | 32,500 | 32,500 |
| 2008 | 32,500 | × | | = | 2,500* | 30,000 |
| 2009 | 30,000 | × | | = | | 30,000 |
| Total | | | | | <u>\$100,000</u> | |

*The balance is calculated as the book value minus the depreciation.

4. Units of production (using machine hours).

| Year | Machine Hours | Depreciation Rate per Hour | Depreciation | Book Value End of Year |
|-------|---------------|----------------------------|------------------|------------------------|
| 2006 | 6,000 | \$4* | \$ 24,000 | \$106,000 |
| 2007 | 8,000 | 4 | 32,000 | 74,000 |
| 2008 | 5,000 | 4 | 20,000 | 54,000 |
| 2009 | 7,000 | | 28,000† | 26,000 |
| Total | | | <u>\$100,000</u> | |

* $\$100,000 - \$24,000 / 25,000 \text{ hours} = \4 per hour
† $\$26,000 = \$54,000 - \$28,000$

Group and composite depreciation methods are used for assets that are similar in nature and use. The group depreciation method defines a collection of depreciable assets that share similar service lives and other attributes. For example, group depreciation could be used for fleets of vehicles, a fleet of trucks, pumps, or machines. The composite depreciation method is used when assets are physically dissimilar but are aggregated anyway to gain the convenience of group depreciation. For instance, machine depreciation can be used for all of the depreciable assets in one manufacturing plant, although individual assets in the composite may have widely diverse service lives.

Group and Composite Depreciation Methods

As an illustration, group depreciation methods could become quite sophisticated if a small company has hundreds, or maybe thousands, of depreciable assets. However, the method he discussed if the company uses the group or composite method to depreciate assets collectively rather than individually. The two methods are the same except for the way the collection of assets is aggregated for depreciation. The group depreciation method defines a collection as depreciable assets that share similar service lives and other attributes. For example, group depreciation could be used for fleets of vehicles, a fleet of trucks, pumps, or machines. The composite depreciation method is used when assets are physically dissimilar but are aggregated anyway to gain the convenience of group depreciation. For instance, machine depreciation can be used for all of the depreciable assets in one manufacturing plant, although individual assets in the composite may have widely diverse service lives.

Both approaches are similar in that they involve applying a single straight-line rate based on the average service lives of the assets in the group or composite.⁴ The process is demonstrated using Illustration 11-2.

ILLUSTRATION 11-2
Group Depreciation

The express delivery company began operations in 2006. It will depreciate its fleet of delivery vehicles using the group method. The list of vehicles purchased early in 2006, along with residual values, estimated lives, and straight-line depreciation per year by type of vehicle, is as follows:

| Asset | Cost | Residual Value | Depreciable Base | Estimated Life (yrs.) | Depreciation per Year (straight line) |
|--------|------------------|-----------------|------------------|-----------------------|---------------------------------------|
| Vans | \$150,000 | \$30,000 | \$120,000 | 6 | \$20,000 |
| Trucks | 120,000 | 18,000 | 104,000 | 5 | 20,800 |
| Wagons | 60,000 | 12,000 | 48,000 | 4 | 12,000 |
| Totals | <u>\$330,000</u> | <u>\$58,000</u> | <u>\$272,000</u> | | |

The group depreciation rate is determined by dividing the depreciation per year by the totals. The group's average service life is calculated by dividing the depreciable base by the depreciation per year.

| | | |
|-------------------------|------------------------------|----------------------|
| Group depreciation rate | $\frac{\$52,800}{\$330,000}$ | 16% |
| Average service life | $\frac{\$272,000}{\$52,800}$ | 5.15 years (rounded) |

Adjusted Depreciation Method: A company could also use a group or composite method by applying a method (e.g., MACRS) to the group or composite rate.

If there are no changes in the assets contained in the group, depreciation of \$52,800 per year ($16\% \times \$330,000$) will be recorded for 15 years. This means the depreciation in the each year will be \$7,920 ($1/15$ of a full year's depreciation = $5\% \times \$52,800$), which depreciates the cost of the group down to its estimated residual value. In other words, the group will be depreciated over the average service life of the assets in the group.

In practice, there very likely will be changes in the assets constituting the group as new assets are added and others are retired or sold. Additionally, the order by which the assets are sold is not known at the time the group is formed. Therefore, the group is depreciated by the straight-line method. The group's depreciation expense is the group's total cost less the estimated residual value divided by the average service life of the assets in the group. The group's depreciation expense is the group's total cost less the estimated residual value divided by the average service life of the assets in the group. This implicitly assumes that the service life of new assets approximates that of individual assets in the group.

Because depreciation records are not kept on an individual asset basis, dispositions are recorded under the assumption that the book value of the disposed item exactly equals any proceeds received and no gain or loss is recorded. For example, if a delivery truck in the above illustration that cost \$15,000 is sold for \$3,000 in the year 2009, the following journal entry is recorded:

| | |
|--------------------------|--------|
| Accumulated Depreciation | 3,000 |
| Accumulated Depreciation | 12,000 |
| Cash | 15,000 |

Any actual gain or loss is included in the accumulated depreciation account. This practice usually will not distort income as the unrecorded gains tend to offset unrecorded losses.

The group and composite methods simplify the recordkeeping of depreciable assets. This simplification justifies any immaterial errors in income determination. Graphic 11-6 shows disclosure from accompanying recent financial statements of the El Paso Natural Gas Company describing the use of the group depreciation method for its regulated property.

The depreciation rate is calculated as follows: $\text{Depreciation Rate} = \frac{\text{Depreciation Expense}}{\text{Book Value}}$

Graphic 11-6 shows the disclosure of the group depreciation method used by the El Paso Natural Gas Company.

| Property, Plant, and Equipment (in part) | |
|---|--|
| Our regulated property, plant, and equipment is depreciated using the group depreciation method. This method requires that the depreciation expense be calculated based on the original cost of the property, plant, and equipment less the estimated residual value, divided by the average service life of the assets in the group. This method does not require the recording of individual asset disposals. The depreciation expense is recorded as a debit to accumulated depreciation and a credit to depreciation expense. | |
| Our unregulated property, plant, and equipment is depreciated using the straight-line method. This method requires that the depreciation expense be calculated based on the original cost of the property, plant, and equipment less the estimated residual value, divided by the average service life of the assets in the group. This method does not require the recording of individual asset disposals. The depreciation expense is recorded as a debit to accumulated depreciation and a credit to depreciation expense. | |

GRAPHIC 11-6

Disclosure of Depreciation Method: El Paso Natural Gas Company

Additional group-based depreciation methods, the retirement and replacement methods, are discussed in Appendix 11B.

Depletion of Natural Resources

The term of the cost of natural resources is called depletion. Because the usefulness of natural resources generally is directly related to the amount of the resources extracted, the cost-based units-of-production method is widely used to calculate periodic depletion. The units-of-production method is used to allocate the cost of natural resources to the units of production. The units-of-production method is used to allocate the cost of natural resources to the units of production.

Depletion base is cost less any anticipated residual value. Residual value could be significant if the land has a value after the natural resource has been extracted.

The example in Illustration 11-3 was first introduced in Chapter 9.

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Illustration 11-3 Depletion of Natural Resources

The Jackson Mining Company paid \$500,000 for the right to explore for a coal deposit on a parcel of land in Pennsylvania. Cost of exploring for the coal deposit totaled \$800,000. The digging and erecting of the mining shaft were \$500,000. In addition, Jackson purchased excavation equipment at the price of a cost of \$600,000. After the shaft is completed, in the state the equipment will be sold for an anticipated price of \$200,000.

The company estimates that 3 million tons of coal will be extracted over the three-year period during which the shaft is in use. If the shaft is sold for \$200,000, it will be sold in a condition that is better than when it was purchased.

In Chapter 10 on page 498 we determined that the capitalized cost of the natural resource coal mine, including the restoration costs, is \$2,768,160. Since there is no residual on the land, the depletion base equals cost and the depletion rate per ton is calculated as follows:

$$\begin{aligned}\text{Depletion per ton} &= \frac{\text{Depletion base}}{\text{Estimated extractable tons}} \\ \text{Depletion per ton} &= \frac{\$2,768,160}{1,000,000 \text{ tons}} = \$2.76816 \text{ per ton}\end{aligned}$$

For each ton of coal extracted, \$2.76816 in depletion is recorded. In 2006, the following journal entry records depletion:

| | | | |
|-----------|--------------------------|---------|---------|
| Depletion | \$2.76816 × 300,000 tons | 830,508 | |
| Credit to | | | 830,508 |

Notice that the credits to the asset coal mine, rather than to a contra account, or imputed depletion. Although this approach is traditional, the use of a contra account is acceptable.

Depletion is a product cost and is included in the cost of the inventory of coal, just as depreciation on manufacturing equipment is included in inventory cost. The depletion is included in cost of goods sold in the income statement when the coal is sold.

What about depreciation on the \$600,000 cost of excavation equipment? If the equipment can be moved from the site and used on future projects, the equipment's depreciation should be allocated over its useful life. If the asset is not movable, as in our illustration, then it should be depreciated over its useful life or the life of the natural resource, whichever is shorter.

As for the depreciation use the same production method to calculate depreciation on amortization on assets used in the extraction of natural resources. The activity base is the same as that used to calculate depletion, the estimated recoverable natural resource. In our illustration, the depreciation rate would be \$.54 per ton, calculated as follows:

$$\text{Depreciation per ton} = \frac{\$600,000 - \$200,000}{1,000,000 \text{ tons}} = \$.54 \text{ per ton}$$

In 2006, \$162,000 in depreciation (\$.54 × 300,000 tons) is recorded and also included as part of the cost of the coal inventory.

The summary of significant accounting policies that accompanies recent financial statements of ConocoPhillips shown in Graphic 11-7 provides a good summary of depletion, amortization, and depreciation for natural resource properties.

Depletion of the right to extract natural resources is calculated by the production method.

The units of production method is used to estimate depletion and amortization on assets used in the extraction of natural resources.

Graphic 11-7
Depletion Method Disclosure—
ConocoPhillips

| Summary of Significant Accounting Policies (in part) | |
|--|--|
| Depletion and Amortization: Rights in natural resource properties are depreciated using the units of production method based on the estimated recoverable natural resource. The units of production method uses an activity base to allocate costs to the units of production. | Depletion and Amortization: Rights in natural resource properties are depreciated using the units of production method based on the estimated recoverable natural resource. The units of production method uses an activity base to allocate costs to the units of production. |

ADDITIONAL CONSIDERATION

Percentage Depletion

Depletion of natural resource value required by GAAP should not be confused with percentage depletion, also called statutory depletion, allowable for income tax purposes on oil, gas, and other mineral and natural resources. In these circumstances, a company will have to deduct a percentage (20% for oil and gas) of the depletion expense without regard to the cost or the natural resource. Depending on the asset, percent depletion can exceed the asset's cost. The percentage allowed varies according to the type of natural resource.

Statutory percentage depletion usually differs from cost depletion, a difference between taxable income and financial reporting income before tax results. These differences are discussed in Chapter 15.

Amortization of Intangible Assets

We turn now to a third type of long-lived asset—intangible assets. As for most other operational assets, we allocate the cost of an intangible asset over its service or useful life. However, for the few intangible assets with indefinite useful lives, amortization is inappropriate.

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INTANGIBLE ASSETS SUBJECT TO AMORTIZATION

Just as the cost of tangible assets is called depreciation, for an intangible asset with a finite useful life we allocate its capitalized cost less any estimated residual value to periods in which the asset is expected to contribute to the company's revenue-generating activities. This requires that we determine the asset's useful life, its amortization base (cost less estimated residual value), and the appropriate allocation method, similar to our depreciating tangible assets.

The cost of an intangible asset with a finite useful life is amortized.

Useful Life. Legal, regulatory, or contractual provisions often limit the useful life of an intangible asset. On the other hand, useful life might sometimes be less than the asset's legal or contractual life. For example, the useful life of a patent would be considerably less than its legal life if 20 years of obsolescence were expected to limit the longevity of a protected product.

Residual Value. We discussed the cost of intangible assets in Chapter 10. The expected residual value of an intangible asset usually is zero. This might not be the case, though, if at the end of its useful life to the reporting entity the asset will benefit another entity. For example, if Quadra Corp. has a commitment from another company to purchase one of its patents at the end of its useful life at a determinable price, we use that price as the asset's residual value.

Allocation Method. The method of amortization should reflect the pattern of use of the asset in generating benefits. Most companies use the straight-line method. We discussed and evaluated a unique approach to determining the periodic amortization of software development costs in Chapter 10. Recall that the periodic amortization percentage for software development costs is the greater of (1) the ratio of current revenues to current and anticipated future percentage of revenue method, or (2) the straight-line percentage over the useful life of the asset.

Intel Corporation reported several intangible assets in a recent balance sheet. A note, shown in Graphic 11-8, disclosed the range of estimated useful lives and the use of the straight-line method of allocation.

Cost depletion, amortization expense traditionally is credited to the asset account itself rather than to accumulated amortization. However, the use of a contra account is acceptable, as in Graphic 11-8 that Intel uses an accumulated amortization contra account. Let's add it as an example in Illustration 11-4.

Similar to depreciation, amortization is either a product cost or a period cost depending on the use of the asset. For intangibles used in the manufacture of a product, amortization is



Graphic 11-8

Intangible Asset Useful Life Disclosure: Intel Corporation

Summary of Significant Accounting Policies (in part)

Identified Intangible Assets

Acquired intangible assets include developed technology, patents and other non-patented technology, acquired customer lists, and other intangible assets. Acquired intangible assets are recorded at fair value at the time of acquisition. The useful life of an intangible asset is determined based on the nature of the asset and the expected future economic benefits. Intangible assets with finite useful lives are amortized over their useful lives on a straight-line basis. Intangible assets with indefinite useful lives are not amortized but are tested for impairment annually and more frequently if events or circumstances indicate that impairment testing may be necessary. The impairment test is performed by comparing the carrying amount of the intangible asset to its fair value. If the carrying amount exceeds the fair value, the intangible asset is impaired and the impairment loss is recognized in the income statement.

ILLUSTRATION 11-4
Amortization of Intangibles

Hollins Acquired an intangible asset in 2007. Early in January, the company purchased a franchise from Aqua Industries for \$200,000. The franchise agreement is for a period of 10 years. In addition, Hollins purchased a patent for \$50,000. The warranty period of the patent is 5 years. However, due to expected technological obsolescence, the company estimates that the useful life of the patent is only 3 years. Hollins uses the straight-line method of amortization for these intangibles. The amortization for these intangibles are as follows:

| Amortization expense (100,000 / 10 years) | 20,000 | |
|---|--------|--------|
| Franchise | | 20,000 |
| To record amortization of franchise | | |
| Amortization expense (50,000 / 3 years) | 16,667 | |
| Patent | | 16,667 |
| To record amortization of patent | | |

a product cost and is included in the cost of inventory (and doesn't become an expense until the inventory is sold). For intangible assets not used in production, such as the franchise in our illustration, periodic amortization is expensed in the period incurred.

INTANGIBLE ASSETS NOT SUBJECT TO AMORTIZATION

An intangible asset that is determined to have an indefinite useful life is not subject to periodic amortization. Useful life is considered indefinite if there is no foreseeable limit on the period of time over which the asset is expected to contribute to the cash flows of the company.

Indefinite does not necessarily mean permanent. For example, suppose Collins Company acquired a trademark in conjunction with the acquisition of a tire company. Collins plans to continue to produce the line of tires marketed under the acquired company's trademark. Recall from our discussion in Chapter 10 that trademarks have a legal life of 10 years, but the registration can be renewed for an indefinite number of 10-year periods. The life of the purchased trademark is initially considered to be indefinite and the cost of the trademark is not amortized. However, if after several years management decides to phase out production of the tire line over the next three years, Collins would amortize the remaining book value over a three-year period.

Recall the Hewlett-Packard Company (HP) acquisition of Compaq Computer Corporation discussed in Chapter 10. HP allocated \$1.4 billion of the purchase price to Compaq trademarks, which is not being amortized. Graphic 11-9 provides another example in a disclosure made by Staples, Inc., in a recent annual report.

Goodwill is the most common intangible asset with an indefinite useful life. Recall that goodwill represents the difference between the purchase price of an acquisition and the value of all of the identifiable intangible and tangible assets minus the fair value of identifiable intangible assets. Does this mean that goodwill and other intangible assets with indefinite useful lives will remain in a company's balance sheet at their original capitalized value?

The cost of an intangible asset with an indefinite useful life is

not amortized.

Goodwill is considered to have an indefinite useful life.

Goodwill is not amortized but is tested for impairment through periodic assessments.

¹⁰ Goodwill and Other Intangible Assets, Statement of Financial Accounting Standards No. 142 (Norwalk, Conn.: FASB, 2001), 14-15.

Goodwill and Intangible Assets (in part)

Under Japanese accounting, a company whose stock price falls below the book value of its equity is required to disclose the reasons for the decline.

Under U.S. accounting, a company whose stock price falls below the book value of its equity is not required to disclose the reasons for the decline.

Graphic 11-9

Indefinite Life Intangibles—Disclosure—Staples, Inc.

Similarly,⁹ Not necessarily. Like other operational assets, intangibles are subject to the impairment-to-value rules we discuss in a subsequent section of this chapter. In fact, indefinite intangibles must be tested for impairment annually, or more frequently if events or circumstances indicate that the asset might be impaired.

ADDITIONAL ISSUES

In part of the chapter, we discuss the following issues related to cost allocation:

- Partial periods
- Large cash outlays
- Straight-line depreciation method
- Partial depreciation
- Impairment of value

PART B**Partial Periods**

When companies are operational assets purchased and disposed of at the very beginning or the very end of a reporting period. When such a situation arises, we must determine how much depreciation, depletion, and amortization should be recorded for the year (that each asset actually is used).

For example, the Hugen Manufacturing Company illustration used earlier in the chapter but with a different description is ¹⁰ to assume that the asset was purchased during the company's first

year. In 2006, the Hugen Manufacturing Company purchased a machine for \$250,000. The company expects the service life of the machine to be 40,000 hours. \$40,000. The machine was disposed of after 30,000 hours on December 31. Partial-year depreciation is recorded for the asset in 2006.

Illustration 11-5

Depreciation Methods—Partial Year

Since that no information is provided on the estimated output of the machine, Partial-year depreciation presents a problem only when time-based depreciation methods are used. Using a time-based method, the rate per unit of output simply is multiplied by the actual output in the period, regardless of the length of that period.

For example, the rate per unit of output is calculated using the chapter for the various methods of depreciation. The methods shown in Illustration 11-5.

Illustration 11-5B shows how Hugen would depreciate the machinery by these three methods assuming an April 1 acquisition date.

Under the straight-line method, the 2006 depreciation is three-quarters of the full year's depreciation for the first year of the asset's life, because the asset was used nine months, or 3/4 of the year. The remaining one-quarter of the first year's depreciation is included in 2007's depreciation along with the depreciation for the second year of the asset's life. This calculation is not necessary for the straight-line method because a full year's depreciation is the same for each year of the asset's life.

Finally, the above procedure is impractical or at least cumbersome. As a result, most companies adopt a simplifying assumption, or convention, for computing partial-year depreciation.



ILLUSTRATION 11-5A
Yearly Depreciation

| Year | Straight Line | Sum-of-the-Years'-Digits | Double-Declining Balance |
|-------|------------------|--------------------------|--------------------------|
| 1 | \$ 42,000 | \$ 70,000 | \$100,000 |
| 2 | 42,000 | 56,000 | 60,000 |
| 3 | 42,000 | 42,000 | 36,000 |
| 4 | 42,000 | 28,000 | 14,000 |
| 5 | 42,000 | 14,000 | 0 |
| Total | <u>\$210,000</u> | <u>\$210,000</u> | <u>\$210,000</u> |

ILLUSTRATION 11-5B Partial-Year Depreciation

| Year | Straight Line | Sum-of-the-Years'-Digits | Double-Declining Balance |
|--------|-----------------------------------|---|---|
| 2006 | $\$42,000 \times 3/4 = \$ 31,500$ | $\$70,000 \times 3/4 = \$ 52,500$ | $\$100,000 \times 3/4 = \$ 75,000$ |
| 2007 | \$ 42,000 | $\$70,000 \times 1/4 = 17,500$
$+ \$6,000 \times 3/4 = 4,500$
\$ 22,000 | $\$70,000 \times 1/4 = 17,500$
$+ \$6,000 \times 3/4 = 4,500$
\$ 22,000* |
| 2008 | \$ 42,000 | $\$56,000 \times 1/4 = 14,000$
$+ \$42,000 \times 3/4 = 31,500$
\$ 45,500 | $\$60,000 \times 1/4 = 15,000$
$+ \$36,000 \times 3/4 = 27,000$
\$ 42,000 |
| 2009 | \$ 42,000 | $\$42,000 \times 1/4 = 10,500$
$+ \$28,000 \times 3/4 = 21,000$
\$ 31,500 | $\$36,000 \times 1/4 = 9,000$
$+ \$14,000 \times 3/4 = 10,500$
\$ 19,500 |
| 2010 | \$ 42,000 | $\$28,000 \times 1/4 = 7,000$
$+ \$14,000 \times 3/4 = 10,500$
\$ 17,500 | $\$14,000 \times 1/4 = 3,500$ |
| 2011 | $\$42,000 \times 1/4 = \$ 10,500$ | $\$14,000 \times 1/4 = \$ 3,500$ | |
| Totals | <u>\$210,000</u> | <u>\$210,000</u> | <u>\$210,000</u> |

*Could also be determined by multiplying the book value at the beginning of the year by twice the straight-line rate: $(\$250,000 - 75,000) \times 40\% = \$ 22,000$.

depreciation and use it consistently. A common convention is to record one-half of a year's depreciation in the year of acquisition and another half year in the year of disposal. This is known as the half-year convention.¹⁴

CONCEPT REVIEW EXERCISE

DEPLETION AND AMORTIZATION

Part A:

On March 29, 2006, the Horizon Energy Corporation purchased the mineral rights to a coal deposit in New Mexico for \$2 million. Development costs and the present value of eventual land restoration costs totaled an additional \$3.4 million. The company removed 200,000 tons of coal during 2006 and estimated that an additional 1,600,000 tons would be removed over the next 15 months.

Required: Compute depletion for 2006 and 2007 using the straight-line method, the sum-of-the-years'-digits method, and the double-declining-balance method. Do you think the depletion expense will be the same for all three methods? Explain.

deplete depletion on the mine for 2006.

| Cost of Coal Mine: | (\$ in millions) | SOLUTION |
|--|------------------|----------|
| Purchase price of mineral rights | \$2.0 | |
| Development and restoration costs | <u>3.4</u> | |
| | <u>\$5.4</u> | |
| Depletion: | | |
| Depletion per ton = $\frac{\$5.4 \text{ million}}{1.8 \text{ million tons}} = \3 per ton | | |
| 2006 depletion = $\$3 \times 200,000 \text{ tons} = \$600,000$ | | |

Part 2:

In 2004, 7/2006, Advanced Micro Circuits, Inc. completed the purchase of Zilog Corporation for \$200 million. Included in the allocation of the purchase price were the following identifiable intangible assets (\$ in millions) along with the allocated amounts and estimated useful lives:

| Intangible Asset | Allocated Amount | Useful Life (in years) |
|----------------------|------------------|------------------------|
| Patent | \$10 | 5 |
| Developed technology | 50 | 4 |
| Customer list | 10 | 2 |

In addition, \$10 million was allocated to tangible assets and \$30 million to goodwill. Straight-line amortization is used for all purchased intangibles.

During 2006, Advanced finished work on a software development project. Development costs incurred after technological feasibility was achieved and before the product release amounted to \$2 million. The software was available for release to the general public on September 30, 2006. During the last three months of the year, revenue from the sale of the software was \$1 million. The company estimates that the software will generate an additional \$10 million in revenue over the next 45 months.

Required:

Compute amortization for purchased intangibles and software development costs for 2006.

Amortization of Purchased Intangibles

SOLUTION

| | |
|----------------------|--|
| Patent | $\$10 \text{ million} / 5 = \$2 \text{ million} \times 3/12 \text{ year} = \0.5 million |
| Developed technology | $\$50 \text{ million} / 4 = \$12.5 \text{ million} \times 3/12 \text{ year} = \3.125 million |
| Customer list | $\$10 \text{ million} / 2 = \$5 \text{ million} \times 3/12 \text{ year} = \1.25 million |
| Goodwill | The cost of goodwill is not amortized. |

Amortization of Software Development Costs:

(1) Percentage-of-revenue method

$$\frac{\$4 \text{ million}}{\$4 \text{ million} + \$6 \text{ million}} = 10\% \times \$2 \text{ million} = \$200,000$$

(2) Straight-line

$$\frac{\$4 \text{ million}}{48 \text{ months}} \text{ or } 6.25\% \times \$2 \text{ million} = \$125,000$$

Advanced will use the percentage-of-revenue method since it produces the greater amortization, \$200,000.

Changes in Estimates



LO3

The calculation of depreciation, depletion, or amortization requires estimates of both service life and residual value. It's inevitable that at least some estimates will prove incorrect. If they do, an estimate of the impact of the change is made along with the effective age of the asset. The change in estimate is disclosed in the subsequent sections of this chapter with the other items of the accounting equation and disclosures required for these changes and errors with the accounting equation.

Changes in estimates are accounted for prospectively. When a company revises a previously established estimate of the useful life of an asset, the original estimate is discarded from the company's records. The company does not recompute the depreciation in any retained accounting determination from then on. So, it usually will affect some aspects of both the balance sheet and the income statement in the current and future periods. And a disclosure note should describe the effect of a change in estimate on income before extraordinary items, net income, and related per share amounts for the current period.

Consider the example in Illustration 11-6.

Illustration 11-6 Change in Accounting Estimate

On January 1, 2004, the Hogan Manufacturing Company purchased a machine for \$250,000. The company expects the service life of the machine to be five years and its anticipated residual value to be \$20,000. The company's fiscal year ends on December 31, and the straight-line depreciation method is used for all depreciable assets. During 2006, the company revises its estimate of service life from five to eight years and also revises estimated residual value to \$22,000.

For 2004 and 2005, depreciation is \$40,000 per year ($[\$250,000 - 40,000] / 5 \text{ years}$, \$84,000 in the two years). However, with the revised estimate, depreciation for 2006 and subsequent years will be determined by allowing the book value remaining at the beginning of 2006 less the revised residual value to be depreciated over the remaining service life of six years (8 years - 2 years). The remaining book value at the beginning of 2006 is \$64,000 ($[\$250,000 - 84,000]$), and depreciation for 2006 and subsequent years is recorded as follows:

Depreciation expense (income)

At the revised depreciation

11

2016

| | | |
|-----------|-----------|---|
| | \$250,000 | Cost |
| \$42,000 | | Old annual depreciation (\$210,000 / 5 years) |
| • 2 years | 84,000 | Depreciation to date (2004–2005) |
| | 166,000 | Book value as of 1/1/06 |
| | 22,000 | Revised residual value |
| | 144,000 | Revised depreciable base |
| | 6 | Estimated remaining life (8 years – 2 years) |
| | 24,000 | New annual depreciation |

The asset's book value is depreciated down to the anticipated residual value of \$22,000 at the end of the revised eight-year service life. In addition, a note discloses the effect of the change in estimate on income, if material. The before-tax effect is an increase in income of \$18,000 (depreciation of \$42,000 if the change had not been made, less \$24,000 depreciation after the change). IBM, software, Inc., recently revised the service lives for capitalization software costs. Graphic 11-10 shows the note that disclosed the change.

Changes in Depreciation, Amortization, or Depletion Method

LO4

Recall from our discussion in Chapter 4 that a recent accounting standard requires the change in depreciation, amortization, or depletion method be considered a change in



Software Development Costs and Related Assets (in millions)

[illegible]

1970-1971
 1972-1973
 1974-1975
 1976-1977
 1978-1979
 1980-1981
 1982-1983
 1984-1985
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 2546-2547
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 2552-2553
 255

GRAPHIC 11.10

**Change in Estimate
Disclosure—BMC,
software, Inc.**

line estimate that is achieved by a change in accounting principle. We account for these changes prospectively, exactly as we would any other change in estimate. One difference between changes in estimate do not require a company to justify the change. However, changes in estimate as a result of changing an accounting principle and therefore requires a justification as to why the new method is preferable. Consider the example in Illustration 10-1.

In January 2004, the Logan Manufacturing Company purchased a machine for \$250,000. Logan expects the economic life of the machine to be five years and its anticipated salvage value to be \$10,000. The company's fiscal year ends on December 31 and the double declining-balance (DDB) depreciation method is used. During 2006, the company switched to the DDB method to straighten the individual DDBs. The adjusting entry is:

தமிழ்நாடு அரசாங்கம்

20 000

Yates' chi-square

20,000

Dr. B. Depressat, on

| | | | |
|-----|-----------|-----------|-----|
| 20% | \$150,000 | \$450,000 | 40% |
|-----|-----------|-----------|-----|

| | | | | |
|------|--------|-----------|----------|-------|
| 7075 | 40.000 | 15250.380 | 100.0000 | - 40% |
|------|--------|-----------|----------|-------|

1997

| Year | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 | |

5280

603

Deposition to data: DC6 (2004-2005)

40.2000

undepreciated cost as of '06

30,200

Less residual value

60 2007

Denegrable hate

3 yr

Remained in 3 weeks. Again.

5. 20. 2000

New annual depreciation

* disclosure note reports the effect of the change on net income and earnings per share with clear justification for changing depreciation methods.

Frequently, when a company changes depreciation method, the change will be effective for assets placed in service after that date. Of course, that means depreciation schedules will require revision because the change does not affect assets depreciated to prior periods. Disclosure Note 13 is required to provide justification for the change and to report the effect of the change in the current year's income. Exhibit 13.1 provides an example of this type of change in depreciation method made by Home Depot.

amortization, or depletion methods are accounted for the same

GRAPHIC 11-11
Change in
Depreciation Method
for Newly Acquired
Assets—The Dow
Chemical Company

Note B: Accounting Change (in part)

| | |
|--|---|
| For a property, the use of the straight-line method of depreciation was changed to the double-declining-balance method beginning in the year 1997. The change was made to conform with the accounting policy adopted by the company in 1997. The change was made to conform with the accounting policy adopted by the company in 1997. The change was made to conform with the accounting policy adopted by the company in 1997. | Beginning of the year 1997, a portion of the company's straight-line method of depreciation was changed to the double-declining-balance method. The change was made to conform with the accounting policy adopted by the company in 1997. The change was made to conform with the accounting policy adopted by the company in 1997. The change was made to conform with the accounting policy adopted by the company in 1997. |
|--|---|

Error Correction

- **LO7** Errors involving operational assets include computational errors in the calculation of depreciation, depletion, or amortization and mistakes made in determining whether expenditures should be capitalized or expensed. These errors can affect many years. For example, let's say a major addition to an operational asset should be capitalized but incorrectly is expensed. Not only is income in the year of the error understated, but subsequent years' income is overstated because depreciation is omitted.

Recall from our discussion of inventory errors in Chapter 9 that, if a material error is discovered in an accounting period subsequent to the period in which the error is made, any previous years' financial statements that were incorrect as a result of the error are retrospectively restated to reflect the correction. Any account balances that are incorrect as a result of the error are corrected by journal entry. If retained earnings is one of the incorrect accounts, the correction is reported as a *prior period adjustment* to the beginning balance in the statement of shareholders' equity.¹ In addition, a disclosure note is needed to describe the nature of the error and the impact of its correction on net income, income before extraordinary items, and earnings per share.

Here is a summary of the treatment of material errors occurring in a previous year:

- Previous years' financial statements are retrospectively restated.
- Account balances are corrected.
- If retained earnings requires correction, the correction is reported as a prior period adjustment.
- A note describes the nature of the error and the impact of the correction on income.

Consider Illustration 11-8. The 2004 and 2005 financial statements that were initially a result of the error are *retrospectively restated* to report the addition to the patent and to reflect the correct amount of amortization expense, assuming both statements are taken again for comparative purposes in the 2006 annual report.

Because retained earnings is one of the accounts incorrect as a result of the error, a correction to that account of \$ 50,000 is reported as a prior period adjustment to the 2006 beginning retained earnings balance in Hathaway's comparative statements of shareholders' equity. Assuming that 2005 is included with 2006 in the comparative statements, a correction would be made to the 2005 beginning retained earnings balance as well. That prior period adjustment, though, would be for the pre-2005 difference: \$300,000 - 60,000 = \$240,000.

Also, a disclosure note accompanying Hathaway's 2006 financial statements should describe the nature of the error and the impact of its correction on each year's net income (understated by \$240,000 in 2004 and overstated by \$60,000 in 2005), income before extraordinary items (same as net income), and earnings per share.

Chapter 20 provides in-depth coverage of changes in estimates and methods, and of accounting errors. We cover the tax effect of those changes and errors in that chapter.

¹ If the error is not material, the error is corrected by a journal entry in the year following the error. If the error is material, the error is corrected by a journal entry in the year following the error. If the error is material, the error is corrected by a journal entry in the year following the error. If the error is material, the error is corrected by a journal entry in the year following the error. If the error is material, the error is corrected by a journal entry in the year following the error.

2006, the controller of the Hathaway Corporation discovered an error in recording the 600 legal fees to successfully defend a patent in 2004. Of course, in 2004, the fee (X) was charged to legal fee expense but should have been capitalized and amortized over the five-year remaining life of the patent. At right, the amortization is used by Hathaway to correct the error.

Analysis

| Hathaway Corporation | | | | | |
|--|-----|-----|----------------------------|-----|-----|
| Correct
(Should Have Been Recorded) | | | Incorrect
(As Recorded) | | |
| Patent | 600 | | Expense | 600 | |
| Cash | | 300 | Cash | | 300 |
| Expense | 60 | | Amortization entry omitted | | |
| Patent | | 60 | | | |
| Expense | 60 | | Amortization entry omitted | | |
| Patent | | 60 | | | |

During the two-year period, amortization expense was understated by \$120 thousand, but the expenses were overstated by \$300 thousand, so net income during the period was understated by \$180 thousand (ignoring income taxes). The means retained earnings is also understated by that amount.

Patent is understated by \$180 thousand.

| | |
|---------------------------|----------------|
| Patent | 500 thousands, |
| Retained earnings | 0 |
| Patent incorrect accounts | |

Illustration 11-8

Error Correction

Sometimes the entry to correct a value error is not the entry actually made. For example, if a company would have recorded a purchase of an asset as an expense and then corrected the error, the entry would be:

Impairment of Value

Amortization, depreciation, and annihilation reflect a gradual consumption of the benefits from an operational asset. An implicit assumption in allocating the cost of an asset over useful life is that there has been no significant reduction in the unexpired total benefits or service potential of the asset. Situations can arise, however, that cause a significant decline or impairment of those benefits or service potentials. An extreme case would be the destruction of a plant asset—say a building destroyed by fire—before the asset is fully depreciated. The remaining carrying value of the asset in that case should be written off as a loss. Sometimes, though, the impairment of future value is more subtle.

The way we recognize and measure an impairment loss differs depending on whether the asset is to be held and used or is being held to be sold. Accounting is different, for operational assets with finite lives and those with indefinite lives. We consider these differences now.

OPERATIONAL ASSETS TO BE HELD AND USED

A increasingly common occurrence in practice is the partial write-down of operational assets that remain in use. For example, in the second quarter of 2001 American Airlines reduced the carrying value (book value) of certain aircraft by \$685 million. The write-down reflected the significant reduction in demand for air travel that occurred even before the September 2001 terrorist attacks on the World Trade Center and the Pentagon.

Consequently, there is considerable merit for a policy requiring the write-down of an operational asset when there has been a significant decline in value. A write-down can provide relevant information about the future cash flows that a company can generate from using the asset. However, in practice, this process is very subjective. Even if it appears certain that an impairment of value has occurred, it often is difficult to measure the minimal of a required write-down.

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FINANCIAL
REPORTING CASE™

Q3, p. 503

An operational asset held for use should be written down if there is a significant impairment of value.

For example, let's say a company purchased \$2,000,000 of equipment to be used in the production of a new type of laser printer. Depreciation is determined using the straight-line method over a useful life of six years and the residual value is estimated at \$200,000. At the beginning of year 3, the machine's book value has been reduced by accumulated depreciation to \$1,400,000 $[\$2,000,000 - (\$300,000 \times 2)]$. At that time, new technology is announced that is a significant reduction in selling price. The new laser printer is well received in the market and demand for the new laser printer is high. Management estimates that the equipment will be useful for only two more years and will have no significant residual value.

This situation is not simply a matter of a change in the estimates of useful life and residual value. Management must decide if the events occurring in year 3 warrant a write-down of the asset below \$1,400,000. A write-down would be appropriate if the company decides that it would be unable to fully recover this amount through future use.

For operational assets to be held and used, different guidelines apply to (A) tangible operational assets and intangible operational assets with finite useful lives (subject to depreciation, depletion, or amortization) and (B) intangible operational assets with indefinite useful lives (not subject to amortization).

Tangible Operational Assets and Finite Life Intangibles. SFAS No. 144 provides guidelines for when to recognize and how to measure impairment losses of long-lived tangible assets and intangible assets with finite useful lives. For purposes of determining impairment measurement, assets are grouped at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets.

Recognition. It would be impractical to test all assets or asset groups for impairment at the end of every reporting period. SFAS 144 requires investigation of possible impairment only if events or changes in circumstances indicate that the book value of the asset or asset group may not be recoverable. This might happen from

- A significant decrease in market price.
- A significant adverse change in how the asset is being used or in its physical condition.
- A significant adverse change in legal factors or in the business climate.
- An accumulation of costs significantly higher than the amount originally expected for the acquisition or construction of an asset.
- A current-period loss combined with a history of losses or a projection of continuing losses associated with the asset.
- A realization that the asset will be disposed of significantly before the end of its estimated useful life.³⁴

Measurement. Determining whether to record an impairment loss and actually measuring the loss is a two-step process. The first step is a recoverability test—an impairment loss is required only when the undiscounted sum of estimated future cash flows from an asset is less than the asset's book value. The measurement of impairment loss—step 2—is the difference between the asset's book value and its fair value. If an impairment loss is recognized, the written-down book value becomes the new cost base for future cost allocation. Later reversal of an impairment loss is prohibited.

Let's look closer at the measurement process (step two). Fair value is the amount at which the asset could be bought or sold in a current transaction between willing parties, or the market prices could be used if they're available. If fair value is not determinable, if the asset is impaired.

The process is best described by an example. Consider Illustration 14-9.

³⁴ Intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment and recorded at fair value less impairment.

³⁵ The amount of impairment loss is calculated as the difference between the asset's book value and its fair value.

CHAPTER 11-12

Asset Impairment:
Corporation ST&T

Note 5. Asset Impairment and Other Charges (In part)

| Assets | Impairment | Other Charges |
|--------------------------------|------------|---------------|
| Goodwill | 1,000 | 1,000 |
| Intangible Assets | 2,000 | 2,000 |
| Property, Plant, and Equipment | 3,000 | 3,000 |
| Other Assets | 4,000 | 4,000 |
| Total | 10,000 | 10,000 |

The above table illustrates the impairment of assets. The impairment of goodwill is 1,000, which is the difference between the carrying amount of goodwill and its fair value. The impairment of intangible assets is 2,000, which is the difference between the carrying amount of intangible assets and their fair value. The impairment of property, plant, and equipment is 3,000, which is the difference between the carrying amount of property, plant, and equipment and their fair value. The impairment of other assets is 4,000, which is the difference between the carrying amount of other assets and their fair value.

Goodwill. Recall that goodwill is a unique intangible asset. Unlike other assets, it (a) cannot be directly associated with any specific identifiable right and (b) is not separable from the company as a whole. Because of these unique characteristics, we can measure impairment of goodwill the same way as other operational assets. SFAS No. 142¹ provides guidelines for impairment, which, while similar to general impairment guidelines, are unique to goodwill. Let's compare the two-step process for measuring goodwill impairment with the two-step process for measuring impairment for tangible operational assets in Table 11-10.

In Step 1, we compare the carrying amount of goodwill with the fair value of the reporting unit. If the carrying amount of goodwill is greater than the fair value of the reporting unit, an impairment loss is indicated. However, in this comparison, the value of assets for tangible operational and finite-life intangibles is considered to be value in use as measured by the sum of undiscounted cash flows expected from the asset. But due to its unique characteristics, the value of goodwill is not associated with any specific cash flows and must be measured in a unique way. The value of goodwill is calculated by subtracting the fair value of all other assets from the value of the reporting unit. If the value of the reporting unit is less than its book value, an impairment loss is indicated. A reporting unit is an operating segment of a company or a component of an operating segment for which discrete financial information is available and segment management regularly reviews the operating results of that component.

If goodwill is tested for impairment at the same time as other operational assets of the reporting unit, the other assets must be tested first and any impairment loss and asset write-downs recorded prior to testing goodwill.

In Step 2, for all classes of operational assets, if impairment is indicated from Step 1, we measure the amount of impairment as the excess of the book value of the asset over its fair value. However, unlike the impairment of operational assets, the fair value of goodwill will be measured as its implied fair value. The implied fair value of goodwill is calculated by subtracting the fair value of all other assets from the fair value of the reporting unit that acquired the goodwill.

The implied fair value of goodwill is calculated in the same way that goodwill is determined in a business combination. That is, it's a residual amount measured by subtracting the fair value of all identifiable net assets from the purchase price using the unit's previously determined fair value as the purchase price. An example is provided in Illustration 11-10.

STEP 1: A goodwill impairment loss is indicated if the carrying amount of the reporting unit is greater than its book value.

STEP 2: A goodwill impairment loss is measured as the excess of the book value of the goodwill over its implied fair value.

¹Goodwill and Other Intangible Assets, Statement of Financial Accounting Standards No. 142 (Norwalk, Conn.: FASB, 2001).

²The impairment loss recognized cannot exceed the book value of goodwill.

On the acquisition date, Pharmacia acquired Pharmacia Corporation's net assets for \$500 million. The fair value of the net assets acquired was \$350 million. The acquired net assets are recorded as a separate intangible asset, goodwill, for \$150 million.

Pharmacia is performing a goodwill impairment test at the end of the year. The book value of Pharmacia's net assets is \$450 million. The fair value of Pharmacia's net assets is \$300 million. The impairment loss is \$150 million (\$450 million - \$300 million).

Step 1: Recoverability. Because the book value of the net assets (\$450 million) exceeds the fair value (\$300 million), an impairment loss is not recognized.

Step 2: Measurement of impairment loss. An impairment loss is not recognized because the book value of the net assets (\$450 million) exceeds the fair value (\$300 million).

Determination of implied goodwill

| | |
|--|---------------|
| fair value of Pharmacia | \$500 million |
| fair value of Pharmacia's net assets, excluding goodwill | 350 million |
| implied value of goodwill | \$150 million |

Measurement of impairment loss

| | |
|---------------------------|---------------|
| book value of goodwill | \$150 million |
| implied value of goodwill | 25 million |
| impairment loss | \$125 million |

Similar to other intangible assets with indefinite useful lives, goodwill should be tested for impairment at least annually and in between annual test dates if events or circumstances indicate that the fair value of the reporting unit is below its book value.

In acquiring company in a business combination often pays for the acquisition using its own stock. In the late 1990s, the stock prices of many companies were unusually high. These inflated stock prices meant high purchase prices for many acquisitions and, in many cases, incredibly high values allocated to goodwill. When stock prices retreated in 2000 and 2001, it became obvious that the book value of goodwill for many companies would never be recovered. Some examples of multi-billion dollar goodwill impairment losses are shown in Exhibit 11-13.

Illustration 11-10

Impairment Loss—Goodwill

Goodwill should be tested for impairment at least annually.

Company Goodwill Impairment Loss

| | |
|----------------------|--------------------------|
| AOL Time Warner | \$54 billion |
| JDS Uniphase | \$0 billion |
| Novel Networks | \$2 billion |
| Lucent Technologies | \$4 billion |
| Vivendi Universal SA | \$5 billion (in dollars) |

Graphic 11-13

Goodwill Impairment Losses

Intel Corporation provides a more recent example. At the end of the company's 2003 fiscal year, it reported a \$6.1 million goodwill impairment loss relating to its Wireless Communications and Computing Group. Exhibit 11-14 describes the circumstances of the impairment and provides a good summary of accounting for goodwill impairment.

OPERATIONAL ASSETS TO BE SOLD

When a company is planning the disposition and measurement of the impairment of value of an operational asset, the company should first determine if the asset is held for sale. If the asset is held for sale, the company should measure the asset's fair value less costs to sell. If the asset is not held for sale, the company should measure the asset's fair value less costs to sell. If the asset is held for sale, the company should measure the asset's fair value less costs to sell. If the asset is not held for sale, the company should measure the asset's fair value less costs to sell.

GRAPHIC 11-14
Goodwill Impairment
Impairment—Intel
Corporation

Note 16 Goodwill (in part)

| Year | Goodwill | Impairment | Net Goodwill |
|------|----------|------------|--------------|
| 2000 | \$1,000 | \$0 | \$1,000 |
| 2001 | \$1,000 | \$0 | \$1,000 |
| 2002 | \$1,000 | \$0 | \$1,000 |
| 2003 | \$1,000 | \$0 | \$1,000 |
| 2004 | \$1,000 | \$0 | \$1,000 |
| 2005 | \$1,000 | \$0 | \$1,000 |
| 2006 | \$1,000 | \$0 | \$1,000 |
| 2007 | \$1,000 | \$0 | \$1,000 |
| 2008 | \$1,000 | \$0 | \$1,000 |
| 2009 | \$1,000 | \$0 | \$1,000 |
| 2010 | \$1,000 | \$0 | \$1,000 |
| 2011 | \$1,000 | \$0 | \$1,000 |
| 2012 | \$1,000 | \$0 | \$1,000 |
| 2013 | \$1,000 | \$0 | \$1,000 |
| 2014 | \$1,000 | \$0 | \$1,000 |
| 2015 | \$1,000 | \$0 | \$1,000 |
| 2016 | \$1,000 | \$0 | \$1,000 |
| 2017 | \$1,000 | \$0 | \$1,000 |
| 2018 | \$1,000 | \$0 | \$1,000 |
| 2019 | \$1,000 | \$0 | \$1,000 |
| 2020 | \$1,000 | \$0 | \$1,000 |
| 2021 | \$1,000 | \$0 | \$1,000 |
| 2022 | \$1,000 | \$0 | \$1,000 |
| 2023 | \$1,000 | \$0 | \$1,000 |
| 2024 | \$1,000 | \$0 | \$1,000 |
| 2025 | \$1,000 | \$0 | \$1,000 |
| 2026 | \$1,000 | \$0 | \$1,000 |
| 2027 | \$1,000 | \$0 | \$1,000 |
| 2028 | \$1,000 | \$0 | \$1,000 |
| 2029 | \$1,000 | \$0 | \$1,000 |
| 2030 | \$1,000 | \$0 | \$1,000 |

value exceeds fair
value less cost to sell

An operational asset or group of assets classified as held for sale is measured at the lower of its book value or fair value less cost to sell. An impairment loss is recognized for any write-down to fair value less cost to sell.¹² Except for measuring the cost to sell, no other similarity to impairment of assets to be held and used. We don't depreciate or amortize the assets while classified as held for sale and report them separately in the balance sheet. Recall from our discussion of discontinued operations in Chapter 4 that similar rules apply to a component of an entity that is classified as held for sale.¹³

Graphic 11-15 summarizes the guidelines for the recognition and measurement of impairment losses.

IMPAIRMENT LOSSES AND EARNINGS QUALITY

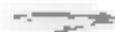
What do in-process research and development expenditures, losses from the write-down inventory, and restructuring costs have in common? The presence of any of these items in corporate income statement presents a challenge to an analyst trying to determine a company's permanent earnings—those likely to continue in the future. We discussed these issues in prior chapters.

We now can add asset impairment losses to the list of "high hush" accounting techniques companies use to manipulate earnings. By writing off large amounts of operational assets, companies significantly reduce earnings in the year of the write-off but are able to increase future earnings by lowering future depreciation, depletion, or amortization. Let's review. We measure the impairment loss as the difference between an asset's book value and its fair value. However, in most cases, fair value must be estimated, and the estimation process usually involves a forecast of future net cash flows the company expects to receive from the asset's use. If a company underestimates future net cash flows, fair value is understated. This has two effects: (1) current year's income is unrealistically low due to the impairment loss being overstated and (2) future income is unrealistically high because depreciation, depletion, and amortization are based on understated asset values.

An analyst must decide

if the company's earnings are sustainable

in the future, the company's earnings are sustainable



| Type of Operational Asset | When to Test for Impairment | Impairment Test |
|--|--|--|
| To Be Held and Used: | | |
| Intangible Asset | When events or circumstances indicate that an impairment loss may exist (see Graph). | Step 1: An impairment loss is required only when book value is greater than fair value.
Step 2: If an impairment loss is required, the impairment loss is the excess of book value over fair value. |
| Intangible Asset with a Higher Degree of Intangibility | At the end of each year or more frequently if indicated. | Step 1: An impairment loss is required when book value exceeds fair value.
Step 2: If an impairment loss is required, the impairment loss is the excess of book value over fair value. |
| Intangible Asset | At least annually or more frequently if indicated. | Step 1: An impairment loss is required when book value exceeds fair value.
Step 2: If an impairment loss is required, the impairment loss is the excess of book value over fair value. |
| To Be Sold | When considered held for sale. | Step 1: An impairment loss is required if the book value exceeds fair value.
Step 2: If an impairment loss is required, the impairment loss is the excess of book value over fair value. |

GRAPHIC 11-15

Summary of Operational Asset Impairment Guidelines

SUBSEQUENT EXPENDITURES

After an asset has been acquired, the subsequent expenditures that are incurred can address accounting issues related to subsequent expenditures. This chapter discusses the accounting for subsequent expenditures related to the acquisition of an asset and/or improvement of an asset.

Expenditures Subsequent to Acquisition

When operational assets require expenditures to repair, maintain, or improve them, these expenditures can present accounting problems if they are made in a period in which they must be expensed, capturing the expenditures by either increasing the asset's book value or expensing the asset or expensing them in the period in which they are incurred. Conceptually, we will refer to the matching principle that requires an expenditure if expenditures are expected to produce benefits beyond the current period. An expenditure has a similar impact on a given level of benefits are expensed in the period they are incurred. Expenditures related to operational assets can increase future benefits in the following ways:

1. An expenditure that is *revenue-producing* to the asset.
2. An increase in the *operating efficiency* of the asset resulting in either an increase in the quantity of goods or services produced or a decrease in future operating costs.
3. An increase in the *quality* of the goods or services produced by the asset.

PERSPECTIVE

In the United States, accounting for operational assets subsequent to initial acquisition is based on the historical cost of the asset, and revaluations to reflect changes in market values, other than in asset impairment situations, generally are not permitted. Internationally, the requirements of IAS 16 deviate significantly from U.S. GAAP by allowing an option to revalue assets at balance sheet dates subsequent to initial valuation.

PART C

• 120

Many companies do not capitalize all expenditures unless the expenditure increases the value of the asset and is considered material.

Expenditures for repairs and maintenance generally are expensed when incurred.

The costs of additions usually are capitalized.

The costs of improvements usually are capitalized.

Theoretically, expenditures that cause any of these results should be capitalized initially and then expensed in future periods through depreciation, depletion, or amortization. This permits the matching of the expenditure with the future benefits. Of course, materiality is an important factor in the practical application of this approach.

For expediency, many companies set materiality thresholds for the capitalization of expenditures. Companies typically capitalize expenditures that increase all of the following: (1) the value of the asset, (2) the useful life of the asset, or (3) the capacity of the asset. Judgment is required to determine a proper materiality threshold. We use the appropriate amount of \$200. There often are practical problems in capitalizing these expenditures. For example, even if future benefits are increased by the expenditures, it may be difficult to determine how long the benefits will last. It is important for a company to establish a policy for treating these expenditures in the financial statements.

We classify subsequent expenditures into (1) repairs and maintenance, (2) additions, (3) improvements, or (4) rearrangements.

REPAIRS AND MAINTENANCE

These expenditures are made to *maintain* a given level of benefits provided by the asset and do not *increase* future benefits. For example, the cost of an engine tune-up or the repair of an engine part for a delivery truck allows the truck to continue to produce benefits. If the maintenance is not performed, the truck will not provide the benefit or gain is anticipated. In other words, future benefits are provided without the repair. The truck will no longer operate. The key, though, is that future benefits are not provided *because* there is enough *extra* value. Expenditures for these activities should be expensed in the period incurred.

ADDITIONAL CONSIDERATION

If repairs and maintenance costs are *accrued*, interim financial statements may be misstated. For example, suppose annual maintenance is performed on a company's fleet of delivery trucks. The annual income statement correctly includes one year's maintenance expense. However, for interim reporting purposes, if the entire expenditure is incurred in one quarter, should that quarter's income statement include as expense the entire cost of the annual maintenance? If these expenditures can be anticipated, they should be accrued evenly throughout the year by crediting an allowance account. The allowance account is then debited when the maintenance is performed.

ADDITIONS

As the term implies, *additions* involve adding a new major component to an existing asset and should be capitalized because future benefits are *increased*. For example, adding a refrigeration unit to a delivery truck increases the capability of the truck, thus increasing future benefits. Other examples include the construction of a new wing on a building and the addition of a security system to an existing building.

The capitalized cost includes all necessary expenditures to bring the addition to a condition and location for use. For a building addition, this might include the costs of tearing down and removing a wall of the existing building. The capitalized cost of additions is depreciated over the remaining useful life of the original asset or its own useful life, whichever is shorter.

IMPROVEMENTS

Expenditures classified as *improvements* involve the replacement of a major component of an operational asset. The replacement can be a new component with the same characteristics as the old component or a new component with enhanced operating capabilities. For example, an existing refrigeration unit on a delivery truck could be replaced with a new but similar unit or with a new and improved refrigeration unit. In either case, the cost of the improvement actually increases future benefits and should be capitalized by increasing the book value of the asset (the delivery truck) and depreciated over the useful life of the improved asset. There are three methods used to record the cost of improvements.

1. **Substitution.** The improvement can be recorded as both (1) a disposition of the old component and (2) the acquisition of the new component. This approach is a financially appealing but is practical only if the original cost and accumulated depreciation of the old component can be separately identified.
2. **Capitalization of new cost.** Another way to record an improvement is to include the cost of the improvement (net of any consideration received from the disposition of the old component) as a debit to an asset account and a credit entry to the original cost and accumulated depreciation of the original component. This approach is acceptable only if the book value of the original component has been reduced to zero before the improvement is made.
3. **First-in, first-out depreciation.** Another way to increase an asset's book value is to have the asset's cost increased but keep the related accumulated depreciation. The argument for this method is that many improvements extend the useful life of an asset and are equivalent to a partial recovery of previously recorded depreciation. This approach produces the same book value as the capitalization of an asset to the asset account. Cost and accumulated depreciation was higher under the two methods.

[illegible]

As the corporation replaced the air conditioning system in one of its office buildings, it also replaced the system in the rest of the old air conditioning system. The old air conditioning system was depreciated over a 10-year period. However, the company has separately depreciated the air conditioning system replacement recorded up to the date of replacement. The old air conditioning system was removed and the new system installed at a cost of \$100,000. The old system was depreciated at \$10,000 per year for 10 years, and the new system is depreciated at \$10,000 per year for 10 years. The old system was depreciated at \$10,000 per year for 10 years, and the new system is depreciated at \$10,000 per year for 10 years.

¹⁴ units, or the improvement differs depending on the alternative chosen.

| Account | Debit | Credit |
|---------------------------------------|---------|---------|
| 1. Cash | | 250,000 |
| 2. Accounts receivable | 250,000 | |
| 3. Inventory | | 250,000 |
| 4. Prepaid expenses | | 250,000 |
| 5. Equipment | | 250,000 |
| 6. Accumulated depreciation—Equipment | | 250,000 |
| 7. Accounts payable | 250,000 | |
| 8. Notes payable | | 250,000 |
| 9. Common stock | | 250,000 |
| 10. Retained earnings | | 250,000 |

ILLUSTRATION 17.34
IMPROVEMENTS

Substitution
 4th, 10th, 11th of 12th
 12th of 12th

2. A number of new companies

କେନ୍ଦ୍ରୀୟ ମିଶ୍ରଣର ଉପର ଉପାଦାନ

Neustein et al.
 Accepted Article

ARRANGEMENTS

Expenditure made to restructure an asset without addition or replacement of intervenient are not capital expenditure. The object of such a restructure is to improve the efficiency of the asset and not to increase its useful life. Examples include the replacement of machinery or the automation of a company's operations and the clearing of a building. These expenditures are maintenance in nature. If they clearly increase the useful life of the asset, they should be capitalized and expenses in the period in which they are incurred. If not, they should be expensed in the period incurred.

trapen. En provideert u informatie al het accountings verslagement for the various types of
documenten elated to any hie operation the assets

The cost of maintaining
an organization should
be capitalized if they
earn income for the
business.

COSTS OF DEFENDING INTANGIBLE RIGHTS

other additions, improvements, and rearrangements generally relate to tangible operating assets. A possible significant expenditure incurred subsequent to the acquisition of intangible assets is the cost of defending the right that gives the asset its value. If an intangible

The 1986 interview to
was not fully understood
an engaged relationship
is capitalized

GRAPHIC 11-16

Expenditures
Subsequent to
Acquisition

| Type of Expenditure | Definition | Usual Accounting Treatment |
|-------------------------|---|---|
| Repairs and Maintenance | Expenditures to maintain an asset in its original condition | Expense in the period incurred |
| Additions | An addition of new material or perfecting an existing asset | Capitalize and depreciate as if the addition were the original asset to be used in the same way as the original asset |
| Improvements | Expenditures to enhance an asset's utility | Capitalize and depreciate over the asset's useful life as improved asset |
| Reorganizations | Expenditures to structure an asset without adding an improvement or improvement | If expenditures are material and clearly increase future benefits, capitalize and depreciate over the future periods benefiting |

The book value of an intangible asset should be reduced



right is successfully defended, the litigation costs should be capitalized and amortized over the remaining useful life of the related intangible. This is the appropriate treatment of these expenditures even if the intangible asset was originally developed rather than purchased.

If the defense of an intangible right is unsuccessful, then the litigation costs should be expensed as incurred because they provide no future benefit. In addition, the book value of an intangible asset should be reduced to net realizable value. For example, if a company is unsuccessful in defending a patent infringement suit, the patent's value may be eliminated. The book value of the patent should be written off as a loss.

FINANCIAL REPORTING CASE SOLUTION

Is Penny correct? Do the terms *depreciation*, *depletion*, and *amortization* all mean the same thing? (p. 504) Penny is correct. Each of these terms refers to the cost allocation of operational assets over their service lives. The term *depreciation* is used for plant and equipment, *depletion* for natural resources, and *amortization* for intangibles.

- What is the units-of-production method? How is it used by this company? (p. 508) The units-of-production method is an activity-based method that computes a depreciation or depletion or amortization rate per measure of activity and then multiplies this rate by actual activity to determine periodic cost allocation. The method is used by this company to (1) depreciate its paper and wood products manufacturing facilities, (2) measure depletion of the cost of timber harvested, and (3) measure amortization of the cost of logging roads. The cost of logging roads is an intangible asset because the company does not own the roads, but the company has incurred costs to upgrade the roads to make them serviceable and has the right to use them in its timber operations.
- Explain how asset impairment differs from depreciation, depletion, and amortization. How are impairment losses measured for tangible operational assets with finite useful lives? (p. 523) Depreciation, depletion, and amortization reflect a gradual consumption of the benefits inherent in an operational asset. An implicit assumption in allocating the cost of an asset over its useful life is that there has been no significant reduction in the asset's potential benefits or service potential of the asset. Situations can arise, however, that cause a significant decline or impairment of those benefits or service potentials. Determining when to recognize an impairment loss for a tangible operational asset and actually recording the loss is a two-step process. The first step is a recoverability test—an impairment loss is required only when the undiscounted sum of estimated future cash flows from an asset is less than the asset's book value. The measurement of impairment loss—step 2—is the difference between the asset's book value and its fair value. If an impairment loss is recognized, the written-down book value becomes the new cost base for future cost allocation. ■

THE BOTTOM LINE

The use of operational assets represents a consumption of benefits, or service potentials, inherent in the assets. The matching principle requires that the cost of these inherent benefits or service potentials that were consumed be recognized as an expense. As there very seldom is a direct relationship between the use of operational assets and revenue production, accounting requires to arbitrary allocation methods to achieve a matching of expenses with revenues.

The allocation process for plant and equipment is called *depreciation*. Time-based depreciation methods estimate service life in years and then allocate depreciable base, cost less estimated residual value, using either a straight-line or accelerated pattern. Activity-based depreciation methods allocate the depreciable base by estimating service life according to some measure of productivity.

3. The allocation process for natural resources is called *depletion*. The activity-based method called units-of-production usually is used to determine periodic depletion.

4. The allocation process for intangible assets is called *amortization*. For an intangible asset with a finite useful life, the depreciable cost less any estimated residual value must be allocated to periods in which the asset is expected to contribute to the company's revenue-generating activities. An intangible asset that is determined to have an indefinite useful life is not subject to periodic amortization. Goodwill is perhaps the most typical intangible asset with an indefinite useful life.

5. A change in either the service life or residual value of an operational asset should be reflected in the financial statements of the current period and future periods by recalculating periodic depreciation, depletion, or amortization.

6. A change in depreciation, depletion, or amortization method is considered a change in accounting estimate that is achieved by a change in accounting principle. We account for these changes prospectively, exactly as we would any other change in estimate. Our difference is that most changes in estimate do not require a company to justify the change. However, this change in estimate is a result of changing an accounting principle and therefore requires a clear justification as to why the new method is preferable.

A material error in accounting for an operational asset that is discovered in a year subsequent to the year of the error requires that previous years' financial statements that were incorrect as a result of the error are retrospectively restated to reflect the correction. Any retained earnings that are incorrect as a result of the error are corrected by entry. If retained earnings is one of the incorrect accounts, the correction is recorded as a prior period adjustment to the beginning balance in the statement of shareholders' equity. In addition, a disclosure note is needed to describe the nature of the error and the impact of its correction on income.

7. Conceptually, there is considerable merit for a policy requiring the write-down of an operational asset when there has been a significant decline in value below carrying value (book value). The write-down provides important information about the future cash flows to be generated from the use of the asset. However, in practice this policy is very subjective. SFAS 144 establishes guidance for when to recognize and how to measure impairment losses of tangible operational assets and intangible operational assets that have finite useful lives. SFAS 142 provides additional guidance for the recognition and measurement of impairment for indefinite life intangibles and goodwill.

8. Goodwill is an intangible asset that is generally recognized when incurred. The recognition of goodwill is an accounting estimate. The recognition of a change in the estimate should be capitalized if the change is clearly in the future benefit.

COMPARISON WITH MACRS (TAX DEPRECIATION)

1. MACRS for financial reporting purposes is an attempt to distribute the cost of the asset, less estimated residual value, over the estimated useful life in a systematic and rational manner that attempts to match revenues with the use of the asset. Depreciation for income

tax purposes is influenced by the revenue needs of government as well as the desire to influence economic behavior. For example, accelerated depreciation schedules currently all were intended to provide incentives for companies to expand and modernize their facilities thus stimulating economic growth.

The federal income tax code allows taxpayers to compute depreciation for their investments on assets acquired after 1986 using the modified accelerated cost recovery system (MACRS).¹⁴ Key differences between the calculation of depreciation for straight-line depreciation and the calculations using MACRS are:

1. Estimated useful lives and residual values are not used in MACRS.
2. Firms can choose among various accelerated methods under MACRS.
3. A half-year convention is used in determining the MACRS depreciation rates.

Under MACRS, each asset is placed within a recovery period category. The guidelines for personal property are 3, 5, 7, 10, 15, and 20 years. For example, the 5-year category includes most machinery and equipment, automobiles, and light trucks.

Depending on the category, fixed percentage rates are applied to the original cost of the asset. The rates for the 5-year asset category are as follows:

| Year | Rate |
|-------|---------|
| 1 | 20.00% |
| 2 | 32.00 |
| 3 | 19.20 |
| 4 | 11.52 |
| 5 | 11.52 |
| 6 | 5.76 |
| Total | 100.00% |

These rates are equivalent to applying the double-declining-balance method with a switch to straight-line in the year straight-line yields an equal or higher deduction than DDB. In some cases, the half-year convention is used regardless of when the asset is placed in service.¹⁵ The first-year rate of 20% for the five-year category is one-half of the DDB rate for an asset with a five-year life ($2 \times 20\%$). The sixth-year rate of 5.76% is one-half of the straight-line rate established in year 4; the year straight-line depreciation exceeds DDB depreciation.

Companies have the option to use the straight-line method for the entire tax life of the asset, applying the half-year convention, rather than using MACRS depreciation schedules. Because of the differences discussed above, tax depreciation for a given year will likely be different from GAAP depreciation. ■

RETIREMENT AND REPLACEMENT METHODS OF DEPRECIATION

Retirement and replacement depreciation methods occasionally are used to depreciate relatively low-valued assets with short service lives. Under either approach, an aggregate cost account that represents a group of similar assets is increased at the time the individual item is acquired.

¹⁴For assets acquired between 1981 and 1986, see depreciation schedules in Reg. 1.167(e)-1, which are printed in Reg. 1.167(e)-1(b). The higher life values are used in the calculation of depreciation.

¹⁵In certain instances, the quarter and half-yearly conventions

are applied using the accelerated cost recovery system (ACRS) schedules. The half-year convention is used for the depreciation method in Reg. 1.167(e)-1(b)(2).

¹⁶Depreciation for pre-1981 assets.

Retirement Method

By the retirement depreciation method, the asset account also is increased for the cost of subsequent expenditures. When an asset is disposed of, the asset account is credited for its cost and depreciation expense is recorded for the difference between cost and proceeds received, if any. No other entries are made for depreciation. As a consequence, one or more periods may pass without any expense recorded. For example, the following entry records the sale of 100 handheld calculators at \$50 each, assuming a cost of \$45 each.

| | | |
|-----------------------|-------|-------|
| Calculator 100 × \$50 | 5,000 | |
| Cash | | 5,000 |

To record the acquisition of calculators:

When 200 calculators are acquired at \$45 each, the asset account is increased.

| | | |
|-----------------------|-----|-----|
| Calculator 200 × \$45 | 900 | |
| Cash | | 900 |

To record the acquisition of calculators:

Thirty calculators are disposed of (retired) by selling them secondhand to a bookkeeping firm for \$5 each. The following entry reflects the retirement method:

| | | |
|--|-------|-------|
| Cash 30 × \$5 | 150 | |
| Depreciation expense (difference
at sale vs. 10 × \$45) | 1,350 | |
| | | 1,500 |

To record the sale/depreciation of calculators.

Because the retirement system assumes a FIFO cost flow approach to determine the assets, \$50 each, that were disposed.

The retirement depreciation method records depreciation when assets are disposed of and requires no depreciation as the difference between the proceeds received and cost.

Replacement Method

By the replacement depreciation method, the initial acquisition of assets is recorded the same way as by the retirement method; that is, the aggregate cost is increased. However, depreciation expense is the amount paid for new or replacement assets. Any proceeds received from asset dispositions reduces depreciation expense. For our example, the acquisition of 200 calculators at \$45 each is recorded as depreciation as follows:

| | | |
|--------------------------------|-----|-----|
| Replacement expense 200 × \$45 | 900 | |
| Cash | | 900 |

To record the replacement depreciation of calculators:

When the old calculators are recovered as a reduction in depreciation:

| | | |
|-------------------|-----|-----|
| Cash 30 × \$5 | 150 | |
| Reduction expense | | 150 |

To record the sale of calculators:

By the replacement method, depreciation is recorded when assets are replaced.

The asset account balance remains the same throughout the life of the aggregate collection of assets.

Because these methods are likely to produce aggregate expense measurements that differ from the actual cost of the assets, individual calculations, retirement and replacement methods are acceptable only in situations where the distortion in depreciation expense does not have a material effect on income. These methods occasionally are encountered in regulated industries such as utilities. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 11-1** Explain the similarities in and differences among depreciation, depletion, and amortization.
- Q 11-2** Depreciation is a process of cost allocation, not valuation. Explain this statement.
- Q 11-3** Identify and define the three characteristics of an asset that must be established to determine periodic depreciation, depletion, or amortization.
- Q 11-4** Discuss the factors that influence the estimate of oil service life for a depreciable asset.
- Q 11-5** What is meant by depreciable base? How is it determined?
- Q 11-6** Briefly differentiate between activity-based and time-based allocation methods.
- Q 11-7** Briefly differentiate between the straight-line depreciation method and accelerated depreciation methods.
- Q 11-8** Why are time-based depreciation methods used more frequently than activity-based methods?
- Q 11-9** What are some factors that would explain the predominance of the straight-line depreciation method?
- Q 11-10** Briefly explain the differences and similarities between the group approach and composite approach to a grouping of depreciable assets.
- Q 11-11** Define depletion and compare it with depreciation.
- Q 11-12** Compare and contrast amortization of intangible assets with depreciation and depletion.
- Q 11-13** What are some of the simplifying conventions a company can use to calculate depreciation for partial use?
- Q 11-14** Explain the accounting treatment required when a change is made to the estimated service life of a depreciable asset.
- Q 11-15** Explain the accounting treatment and disclosures required when a change is made in depreciation expense.
- Q 11-16** Explain the steps required to correct an error in calculating for an operational asset that is discovered in year subsequent to the year the error was made.
- Q 11-17** Explain what is meant by the replacement value of an operational asset. How should these improvements be accounted for?
- Q 11-18** Explain the differences in the accounting treatment of repairs and maintenance, additions, improvements, and rearrangement.

BRIEF EXERCISES

BE 11-1
Cost allocation

• 10 min

At the beginning of its fiscal year Kuylen Corporation purchased a machine for \$50,000. At the end of the year, the machine had a replacement value of \$30,000. Kuylen Corporation reported depreciation expense of \$ 8,000 for the year. Describe the decline in the machine's value. Why is this an incorrect approach to measuring periodic depreciation?

BE 11-2
Depreciation methods

• 10 min

On January 1, 2006, Hansen Plumbing Inc. purchased equipment for \$30,000. Estimated value at the end of an estimated useful service life is \$10,000. The company expects the machine to operate for 10,000 hours. Calculate depreciation expense for 2006 and 2007 using each of the following depreciation methods: (a) straight line, (b) sum-of-the-years'-digits, (c) double-declining balance, and (d) units-of-production using machine hours. The machine operated for 2,500 and 3,000 hours in 2006 and 2007, respectively.

BE 11-3
Depreciation methods; partial year

• 10 min

Refer to the situation described in BE 11-2. Assume the machine was purchased on March 31, 2006, instead of January 1. Calculate depreciation expense for 2006 and 2007 using each of the following depreciation methods: (a) straight line, (b) sum-of-the-years'-digits, and (c) double-declining balance.

BE 11-4
Group depreciation

• 10 min

Mundale Winery depreciates its equipment using the group method. The cost of equipment purchased in 2006 totaled \$40,000. The estimated useful life of the equipment was 40,000 hours and the group depreciation rate was determined to be 18%. What is the annual depreciation for the group? If equipment that \$42,000 is sold in 2007 for \$35,000, what amount of gain or loss will the company recognize for the year?

BE 11-5
Depletion

• 10 min

Fraserford Oil and Gas incurred costs of \$675 million for the acquisition and development of a quantity of oil. The quantity of oil that is estimated to be recoverable is 100 million cubic feet. Oil and gas extracted during year 1 and year 2 were 700,000 and 800,000 cubic feet, respectively. What is the depletion for year 1 and year 2?

BE 11-6
Amortization

• 10 min

On June 28, Leskon Corporation acquired 100% of the common stock of Galt & Basista. The purchase price allocation included the following items: (a) identifiable intangible assets, \$5 million; (b) research and development, \$5 million; (c) goodwill. Leskon's policy is to amortize intangible assets over 10 years.

Assets using the straight-line method, an estimated value, and a five-year useful life. What is the amount of expense ignored on the statement of assets and liabilities in the year ended December 31, 2005?

At the beginning of 2004, Rebock Inc. acquired a manufacturing facility for \$2 million. The building's useful life was estimated to be 25 years. Depreciation for 2004 and 2005 was calculated using the straight-line method, a 25-year useful life, and a \$1 million residual value. In 2006, the estimates of useful life and residual value were changed to 17 years and \$500,000, respectively. What is depreciation on the building for 2006?

Refer to the situation described in BE 17. Assume that instead of changing the useful life and residual value, in 2006 the company switches to the double-declining-balance depreciation method. How should Rebock account for the change? What is depreciation on the building for 2006?

Refer to the situation described in BE 17. Assume that 2004 depreciation was incorrectly recorded as \$32,000. This error was discovered in 2006. How should Rebock account for the error? What is depreciation on the building for 2006 assuming a change in estimate of useful life or residual value?

Carlson and Ryder Company (C&R) has been experiencing declining market conditions for its sportswear division. Management decided to sell the operations assets of the division for possible impairment. The test revealed the following: book value of division's assets, \$26.5 million; fair value of division's assets, \$23 million; sum of estimated future cash flows generated from the division's assets, \$26 million. What amount of impairment loss should C&R recognize?

Refer to the situation described in BE 18. Assume that the sum of estimated future cash flows is \$24 million instead of \$26 million. What amount of impairment loss should C&R recognize?

WebHelp, Inc. acquired 80% of the outstanding stock of Silver Chips Corporation (SCC) for \$45 million, of which \$5 million was allocated to goodwill. At the end of the current fiscal year, the annual impairment test revealed the following: fair value of SCC, \$40 million; fair value of SCC's net assets (excluding goodwill), \$28 million; book value of SCC's net assets (including goodwill), \$47 million. What amount of impairment loss should WebHelp recognize?

Refer to the situation described in BE 19. Assume that the fair value of SCC is \$44 million instead of \$40 million. What amount of impairment loss should WebHelp recognize?

Deemest Manufacturing incurred the following expenditures during the current fiscal year: annual maintenance on its machinery, \$5,000; remodeling of offices, \$22,000; rearrangement of the shipping and receiving areas resulting in an increase in productivity, \$35,000; addition of a security system to the manufacturing facility, \$25,000. How should Deemest account for each of these expenditures?

EXERCISES

Exercise 14-1 (Basic) The following information pertains to the operations of a company.

An alternate exercise and problem set is available on the text website www.mhhe.com/spland4e.

On January 1, 2016, the Great Delivery Company purchased a delivery van for \$37,000. At the end of its five-year service life, it is estimated that the van will be worth \$3,000. During the five-year period, the company expects to drive the van 100,000 miles.

Required:

Calculate annual depreciation for the five-year life of the van using each of the following methods. Round all calculations to the nearest dollar.

1. Straight-line
2. Sum-of-the-years' digits
3. Double-declining-balance
4. Units of production (using miles driven as a measure of output, and the following actual mileage

Depreciation methods

107

| Year | Units |
|------|--------|
| 2006 | 22,000 |
| 2007 | 24,000 |
| 2008 | 15,000 |
| 2009 | 20,000 |
| 2010 | 21,000 |

E 11-2
Depreciation methods

LO2

On January 1, 2006, the Allegheny Corporation purchased machinery for \$43,000. The estimated useful life of the machinery is 10 years and the estimated residual value is \$5,000. The machine is expected to produce 220,000 units during its life.

Required

Calculate depreciation for 2006 and 2007 using each of the following methods. Round all computations to the nearest dollar.

- Straight line
- Sum-of-the-years' digits
- Double-declining balance
- One hundred fifty percent declining balance
- Units of production (units produced in 2006, 50,000; units produced in 2007, 25,000)

E 11-3
Depreciation methods
partial years

LO2

(This is a variation of the previous exercise modified to focus on depreciation for partial years.)

On October 1, 2006, the Allegheny Corporation purchased machinery for \$43,000. The estimated useful life of the machinery is 10 years and the estimated residual value is \$5,000. The machine is expected to produce 220,000 units during its life.

Required

Calculate depreciation for 2006 and 2007 using each of the following methods. Partial-year depreciation is calculated based on the number of months the asset is in service. Round all computations to the nearest dollar.

- Straight line
- Sum-of-the-years' digits
- Double-declining balance
- One hundred fifty percent declining balance
- Units of production (units produced in 2006, 50,000; units produced in 2007, 25,000)

E 11-4
Depreciation methods
asset addition

LO2

Forrest's company purchased a five-story office building on January 1, 2004, at a cost of \$5,000,000. The building has a residual value of \$200,000 and a 40-year life. The straight-line depreciation method was used. On June 30, 2006, construction of a sixth floor was completed at a cost of \$1,650,000.

Required

Calculate the depreciation on the building and building addition for 2006 and 2007 assuming that the sixth floor did not change the life or residual value of the building.

E 11-5
Depreciation methods;
solving for unknowns

LO2

For each of the following depreciable assets, determine the missing amount (?). Abbreviations for depreciation methods are SL for straight line, SYD for sum-of-the-years' digits, and DDB for double-declining balance.

| Asset | Cost | Residual Value | Service Life (Years) | Depreciation Method | Depreciation Year 1 |
|-------|----------|----------------|----------------------|---------------------|---------------------|
| A | | \$21,000 | 5 | DDB | \$4,735 |
| B | \$40,000 | ? | 8 | SYD | 700 |
| C | 65,000 | 5,000 | ? | SL | 6,750 |
| D | 730,000 | 0,000 | 10 | ? | 73,000 |
| E | 200,000 | 20,000 | 8 | 150% DDB | ? |

E 11-6
Multiple choice; cost allocation

LO2 through LO4

The following questions dealing with depreciation, amortization, and depletion are adopted from questions that appeared on CPA examinations. Determine the response that best completes the statements or answers the questions. Assume that the company is a calendar-year entity. Assume that the company is a calendar-year entity. Assume that the company is a calendar-year entity.

- \$ 5,000
- \$ 10,000
- \$ 15,000
- \$ 20,000

3. Smith Co. purchased a machine that was installed and placed in service on January 1, 2006, at a cost of \$240,000. Salvage value was estimated at \$40,000. The machine is being depreciated over 10 years by the double-declining-balance method. For the year ended December 31, 2007, what amount should Smith report as depreciation expense?
- \$44,000
 - \$ 8,000
 - \$32,000
 - \$2,000
3. A machine with a five-year estimated service life and an estimated 10% residual value was acquired on January 1, 2004. On December 31, 2007, accumulated depreciation, using the straight-line method, would be:
- (Original cost less residual value) multiplied by 1/5
 - (Original cost less residual value) multiplied by 4/5
 - Original cost multiplied by 24/5
 - Original cost multiplied by 1/5
4. Mark Co. bought a franchise from Fred Co. on January 1, 2006, for \$204,000. An independent consultant retained by Mark estimated that the remaining life of the franchise was 40 years. Its unamortized cost on Fred's books at January 1, 2006, was \$66,000. What amount should be amortized for the year ended December 31, 2006?
- \$5,100
 - \$4,640
 - \$4,000
 - \$1,700

Higginbotham Rental Company purchased an apartment building early in 2006. There are 20 apartments in the building and each is furnished with major kitchen appliances. The company has decided to use the group depreciation method for the appliances. The following table are available:

| Appliances | Cost | Residual Value | Service Life (in Years) |
|---------------|----------|----------------|-------------------------|
| Stoves | \$15,000 | \$3,000 | 8 |
| Refrigerators | 10,000 | 1,000 | 5 |
| Dishwashers | 8,000 | 500 | 4 |

In 2009, three new refrigerators costing \$2,700 were purchased for cash. The old refrigerators, which originally cost \$1,500, were sold for \$200.

Required:

- Calculate the group depreciation rate, group life, and depreciation for 2009.
- Prepare the journal entries to record the purchase of the new refrigerators and the sale of the old refrigerators.

On January 2, 2006, the Jackson Company purchased equipment to be used in its manufacturing process. The equipment has an estimated life of eight years and an estimated residual value of \$30,000. The expenditures made to acquire the asset were as follows:

| | |
|----------------------|-----------|
| Purchase price | \$154,000 |
| Freight charges | 2,000 |
| Installation charges | 4,000 |

Jackson's policy is to use the double-declining-balance (DDB) method of depreciation in the early years of the equipment's life and then switch to straight-line halfway through the equipment's life.

Required:

- Calculate depreciation for each year of the asset's eight-year life.
- Discuss the accounting treatment of the depreciation on the equipment.

On April 7, 2006, the Louisiana Mining Company purchased the rights to a coal mine. The purchase price plus additional costs necessary to prepare the mine for extraction of the coal totaled \$4,500,000. The company expects to extract 900,000 tons of coal during a four-year period. During 2006, 240,000 tons were extracted and sold immediately.

Required:

- Calculate depletion for 2006.
- Discuss the accounting treatment of the depletion calculated in requirement 1.

E 11-10

Cost of a natural resource; depletion and depreciation
 Chapters 10 and 11

LO1, LO3

[This exercise is a continuation of Exercise 10-3 in Chapter 10 focusing on depletion and depreciation.]

Apex Mining Company operates a copper mine in central Montana. The company paid \$1,000,000 for the mining site and spent an additional \$400,000 to prepare the mine for extraction of the copper. After the mine is extracted in a progressive fashion over the next 10 years, the company is required to restore the land to original condition, including replanting of trees and replanting a greenhouse. The company has provided the following three cash flow possibilities for the restoration costs:

| | Cash Outflow | Probability |
|---|--------------|-------------|
| 1 | \$100,000 | 25% |
| 2 | \$200,000 | 60% |
| 3 | \$300,000 | 15% |

To aid extraction, Jackson purchased some new equipment on July 1, 2006, at \$700,000. After the equipment is used in this mine, the company will be left with an estimated residual amount of \$100,000. There will be no residual value for the copper mine. The credit-adjusted risk-free rate of interest is 8%.

The company expects to extract 10 million pounds of copper from the mine. Actual production was 1 million pounds in 2006 and 3 million pounds in 2007.

Required:

1. Compute depletion and depreciation on the mine and mining equipment for 2006 and 2007. The cost-of-production method is used to calculate depreciation.
2. Discuss the accounting treatment of the depletion and depreciation on the mine and mining equipment.

E 11-11

Amortization

LO4

James Company provided the following information on intangible assets:

- a. A patent was purchased from the Lee Company for \$700,000 on January 1, 2004. James estimated the remaining useful life of the patent to be 10 years. The patent was carried on Lee's accounting records at a book value of \$250,000 when it was sold to James.
- b. During 2006, a franchise was purchased from the Rink Company for \$500,000. The contractual term of the franchise is 10 years, and James records a full year of amortization in the year of purchase.
- c. James incurred research and development costs in 2006 as follows:

| | |
|------------------------|------------------|
| Materials and supplies | \$140,000 |
| Personnel | 780,000 |
| Indirect costs | 60,000 |
| Total | <u>\$980,000</u> |

- d. Effect (as January 1, 2006, based on new events that have occurred, James estimates that the remaining life of the patent purchased from Lee is only five more years.

Required:

1. Prepare the entries necessary in 2004 and 2006 to reflect the above information.
2. Prepare a schedule showing the intangible asset section of James's December 31, 2006, balance sheet.

E 11-12

Patent amortization

LO4

On January 1, 2006, David Corporation purchased a patent for \$500,000. The remaining legal life was 10 years, but the company estimated that the patent will be useful only for eight years. In January 2006, the company incurred legal fees of \$45,000 in successfully defending a patent infringement suit. The successful defense did not change the company's estimate of useful life.

Required:

Prepare journal entries related to the patent for 2006, 2007, and 2008.

E 11-13

Change in estimate useful life of patent

LO4, LO5

Vib Frank Telecommunications has a patent in a cellular transmission process. The company has amortized the patent on a straight-line basis since 2002, when it was acquired at a cost of \$9 million at the beginning of that year. Due to rapid technological advances in the industry, management decided that the patent will benefit the company over a total of six years, rather than the nine-year life being used to structure its cost. The decision was made at the end of 2006 (before adjusting and closing entries).

Required:

Prepare the appropriate adjusting entry for patent amortization in 2006 to reflect the revised estimate.

E 11-14

Change in estimate useful life and residual value of equipment

LO2, LO5

Winkell Company purchased a microcomputer on January 1, 2004, at a cost of \$40,000. The computer was depreciated using the straight-line method over an estimated five-year life with an estimated residual of \$4,000. On January 1, 2006, the estimate of useful life was changed to a total of 10 years, and the estimated residual value was changed to \$10,000.

Required:

1. Prepare the appropriate adjusting entry for depreciation in 2006 to reflect the revised estimate.
2. Repeat requirement 1 assuming that the company uses the sum-of-the-years'-digits method instead of the straight-line method.

1. Large n principle
change in depreciation
method

2. 2005

3. Large n principle
change in depreciation
method

4. 2005

Allison Corporation purchased a machine for \$1.5 million in 2003. The machine is being depreciated over a 10-year life using the sum-of-the-years'-digits method. The residual value is expected to be \$200,000. At the beginning of 2006, Allison decided to change to the straight-line depreciation method for this machine.

Required:
Prepare the 2006 depreciation adjusting entry.

For financial reporting, Clinton Fowler, Farmer has used the declining-balance method of depreciation for various equipment acquired at the beginning of 2003 for \$2,500,000. Its useful life was estimated to be six years, with a 5% to 30% residual value. At the beginning of 2006, Clinton decides to change to the straight-line method. The effect of this change on depreciation for each year is as follows:

| Year | in 2006 | | |
|------|---------------|-------------------|------------|
| | Straight-Line | Declining Balance | Difference |
| 2003 | \$ 400 | \$ 640 | \$240 |
| 2004 | 400 | 560 | 50 |
| 2005 | 400 | 480 | 60 |
| | \$1,200 | \$1,680 | \$480 |

Required:

- Briefly describe the way Clinton should report this accounting change in the 2005-2006 comparative financial statements.
- Prepare any 2006 journal entry related to the change.

5. 2007
6. 2007

In 2006, external auditors discovered that PKE Displays, Inc., had debited an expense account for the \$350,000 cost of a machine purchased on January 1, 2003. The machine's life was expected to be five years with an residual value. Straight-line depreciation is used by PKE.

Required:

- Prepare the appropriate correcting entry assuming the error was discovered in 2006 before the adjusting and closing entries. Ignore income taxes.
- Assume the error was discovered in 2008 after the 2007 financial statements are issued. Prepare the appropriate correcting entry.

7. 2007
8. 2007
9. 2007

Chadwick Enterprises, Inc., operates several restaurants throughout the Midwest. Three of its restaurants located in the center of a large urban area have experienced declining profits due to declining population. The company's management has decided to test the operational assets of the restaurants for possible impairment. The relevant information for these assets is presented below.

| | |
|---|---------------|
| Book value | \$6.5 million |
| Estimated undiscounted sum of future cash flows | 4.0 million |
| Fair value | 3.5 million |

Required:

- Determine the amount of the impairment loss.
- Repeat requirement 1 assuming that the estimated undiscounted sum of future cash flows is \$6.8 million and fair value is \$5 million.

10. 2007
11. 2007

In 2004, Alliant Corporation acquired Centerpoint, Inc., for \$300 million, of which \$50 million was allocated to goodwill. Alliant tests the goodwill impairment at the end of each year. At the end of 2006, management reported the following information:

| | |
|---|---------------|
| Fair value of Centerpoint, Inc. | \$220 million |
| Fair value of Centerpoint's net assets (excluding goodwill) | 200 million |
| Book value of Centerpoint's net assets (including goodwill) | 280 million |

Required:

- Calculate the amount of the impairment loss.
- Repeat requirement 1 assuming that the fair value of Centerpoint is \$270 million.

12. 2007
13. 2007
14. 2007

- Rebelle Company made the following expenditures related to its 10-year-old manufacturing facility:
- The heating system was replaced at a cost of \$250,000. The cost of the old system was not known. The company accounts for improvements as reductions of accumulated depreciation.
 - A new wing was added at a cost of \$750,000. The new wing substantially increases the productive capacity of the plant.
 - Annual building maintenance was performed at a cost of \$4,000.
 - A set of machines on the production line in the plant was scrapped at a cost of \$50,000. The replacement clearly increases the productive capacity of the plant.

Required

Prepare journal entries to record each of the above expenditures.

E 1-21

Capitalize or methods
disposal of operational
asset. Chapters 17
and 18

E 1-22

E 1-22

Multiple choice

Operational assets

• 100% 100% 100% 100%

Howarth Manufacturing Company purchased a lathe on June 30, 2003, at a cost of \$80,000. The value of the lathe was estimated to be \$5,000 at the end of a five-year life. The lathe was sold on May 31, 2006, for \$17,000. Howarth uses the straight-line depreciation method for all of its plant and equipment. Partial-year depreciation is calculated based on the number of months the asset is in service.

Required

- Prepare the journal entry to record the sale.
- Assuming that Howarth had instead used the sum-of-the-years'-digits depreciation method, prepare the journal entry to record the sale.

The following questions involving operational assets are adapted from questions that appeared on CPA examinations. Determine the response that best completes the statements or answers the questions.

- In January 2004, Winn Corp. purchased equipment at a cost of \$500,000. The equipment has an estimated residual value of \$50,000, an estimated eight-year useful life, and was being depreciated using the straight-line method. Two years later, it became apparent to Winn that the equipment suffered permanent impairment of value. In January 2006, management determined the carrying amount should be only \$175,000, with a two-year remaining useful life, and the residual value should be reduced to \$25,000. On Winn's December 31, 2006, balance sheet, the equipment should be reported at a net amount of:
 - \$ 91,160
 - \$ 144,000
 - \$190,000
 - \$ 40,000
- On January 1, 2003, Esau Inc. acquired equipment for \$100,000 with an estimated 10-year useful life and an estimated \$10,000 residual value and used the straight-line method of depreciation. On December 31, 2006, financial statements for Esau were being determined and it was determined that due to obsolescence, the equipment's remaining useful life was only four years and its residual value would be \$0. On Esau's December 31, 2007, balance sheet, what was the carrying amount of this asset?
 - \$5,000
 - \$49,000
 - \$41,500
 - \$4,000
- In January 1, 2003, Tuff Co. purchased a patent for \$750,000. The patent is being amortized over a remaining legal life of 15 years expiring on January 1, 2018. During 2006, Tuff determined that economic benefits of the patent would not last longer than 10 years from the date of acquisition. What amount should be reported on the balance sheet for the patent, net of accumulated amortization, on December 31, 2006?
 - \$433,000
 - \$380,000
 - \$504,000
 - \$570,000
- On May 1, 2005, Yoo Corp. installed a production assembly line to manufacture furniture. As part of the project, Yoo purchased a new machine and rearranged the assembly line to install this machine. The rearrangement did not significantly increase the estimated useful life of the assembly line, but it did result in a significant increase in production. The following expenditures were incurred in completing the project:

| | |
|---|----------|
| Machine | \$75,000 |
| Salaries to install machine | 14,000 |
| Parts added in rearranging the assembly line to provide future benefits | 80,000 |
| Labor and overhead to rearrange the assembly line | 18,000 |

| | |
|---|----------|
| Machine | \$75,000 |
| Salaries to install machine | 14,000 |
| Parts added in rearranging the assembly line to provide future benefits | 80,000 |
| Labor and overhead to rearrange the assembly line | 18,000 |

What amount of the above expenditures should be capitalized in 2005?

- \$ 97,000
- \$ 144,000
- \$189,000
- \$ 3,000

Each item from the A-10y Index, with the item from the C-39 that is most appropriately associated with it.

| 11/7 | 11/8 |
|---|---|
| <ul style="list-style-type: none"> 1. Identifiable Intangible Assets 2. Identifiable Intangible Assets 3. Identifiable Intangible Assets 4. Identifiable Intangible Assets 5. Identifiable Intangible Assets 6. Identifiable Intangible Assets 7. Identifiable Intangible Assets 8. Identifiable Intangible Assets 9. Identifiable Intangible Assets 10. Identifiable Intangible Assets | <ul style="list-style-type: none"> 1. Identifiable Intangible Assets 2. Identifiable Intangible Assets 3. Identifiable Intangible Assets 4. Identifiable Intangible Assets 5. Identifiable Intangible Assets 6. Identifiable Intangible Assets 7. Identifiable Intangible Assets 8. Identifiable Intangible Assets 9. Identifiable Intangible Assets 10. Identifiable Intangible Assets |

The following questions dealing with the environment and the ethical structure of financial accounting were adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides teachers with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or directions.

W.D. Mining Company purchased a section of land for \$600,000 in 1994 to develop a zinc mine. The mine began operating in 1997. At that time, management estimated that the mine would produce 200,000 tons of quality ore. A total of 100,000 tons of ore was mined and produced from 1997 through December 31, 2004. During January, 2005, a very promising vein was discovered. The revised estimate of ore still to be mined was 250,000 tons. Estimated salvage value for the mine land was \$100,000 in both 1997 and 2005. Assuming that 10,000 tons of ore was mined in 2005, the computation W.D. Mining Company should use to determine the amount of depletion to record in 2005 would be:

- | | | | | | | | |
|----|-------------|-------------|-------------|------|---|------|------|
| b. | (\$500,000) | (\$100,000) | (\$400,000) | 100% | × | 100% | 100% |
| c. | (\$500,000) | \$100,000 | \$200,000 | 100% | × | 100% | 100% |
| d. | (\$500,000) | \$100,000 | \$200,000 | 100% | × | 100% | 100% |

Q918 That was corroborated with regard to a patent include

- Legal fees of obtaining the patent, incidental costs of obtaining the patent, and costs of successful patent infringement suits
- Legal fees of obtaining the patent, incidental costs of obtaining the patent, and research and development costs incurred up to the invention that is patented
- Legal fees of obtaining the patent, portion of successful patent law litigation costs, and development costs incurred up to the invention that is patented
- Incidental costs of obtaining the patent, costs of successful and unsuccessful patent infringement suits, and the value of any other patents licensed by the patent owner

- 3 On September 1, 1997, for \$4,000,000 cash and \$2,400,000 notes payable, Northco Corporation acquired the net assets of Crivoline Company, which had a fair value of \$3,440,000 on that date. Northco's management in its opinion has the goodwill generated from an indefinite life. During the year-end audit for year 7 after all adjusting entries have been made, the goodwill is determined to be worthless. The amount of the write-off as of December 31, year 7, should be:

- | | |
|---|--------------|
| a | 6 JUL 1988 |
| b | 6-8 SEP 1988 |
| c | 5-6 AUG 1988 |
| d | 5-7 + 8 SEP |

Cellular Construction Company uses the retirement method to determine depreciation on its small tools. During 2004, the first year of the company's operations, tools were purchased at a cost of \$8,000. In 2006, tools originally costing \$2,000 were sold for \$1,500 and replaced with new tools costing \$2,500.

- Prepare journal entries to record each of the above transactions.
- Repeat requirement 1 assuming that the company uses the replacement depreciation method instead of the replacement method.

PROBLEMS

An alternate exercise and problems set is available on the text website: www.mhhe.com/spiceland6

P 11-1

Depreciation methods,
change in methods

• LO 2, 16

The fact that generally accepted accounting principles allow companies flexibility in choosing between or among alternative methods can make it difficult for a financial analyst to compare periodic performance for firms properly.

Suppose you were a financial analyst trying to compare the performance of two companies. Company A uses the double-declining-balance depreciation method. Company B uses the straight-line method. You have the following information taken from the 2005-2006 year-end financial statements for Company B:

| Income Statement | |
|-------------------------------|------------|
| Depreciation expense | \$ 10,000 |
| Balance Sheet | |
| Assets | |
| Plant and equipment, at cost | \$200,000 |
| Less Accumulated depreciation | 40,000 |
| Net | \$ 160,000 |

You also determine that all of the assets constituting the plant and equipment of Company B were acquired at the same time and that all of the \$200,000 represents depreciable assets. Thus, all of the depreciable assets use the same useful life and residual values are zero.

Required:

- In order to compare performance with Company A, calculate what B's depreciation expense would have been for 2006 if the double-declining-balance depreciation method had been used by Company B since acquisition of the depreciable assets.
- If Company B decides to switch depreciation methods in 2006 from the straight line to the double-declining-balance method, prepare the 2006 adjusting journal entry to record depreciation for the

P 11-2

Comprehensive
problem: Chapters 10
and 15

• LO 1, 10

Excel

A December 31, 2005, Cord Company's plant asset and accumulated depreciation and amortization accounts had balances as follows:

| Category | Plant Asset | Accumulated Depreciation and Amortization |
|-------------------------|-------------|---|
| Land | \$ 125,000 | \$ — |
| Buildings | 1,500,000 | 328,400 |
| Machinery and equipment | 1,125,000 | 317,500 |
| Automobiles and trucks | 200,000 | 80,000 |
| Leasehold improvements | 200,000 | 100,000 |
| Land improvements | — | — |

Depreciation methods and useful lives:

Buildings—100% declining balance, 25 years

Machinery and equipment—Straight line, 10 years

Automobiles and trucks—150% declining balance, 5 years; all acquired after 2002

Leasehold improvements—Straight line

Land improvements—Straight line

Depreciation is computed to the nearest penny and residual values are zero unless otherwise stated. Transactions are 2006 and other information:

- On January 6, 2006, a plant facility consisting of land and building was acquired from King Company in exchange for 25,000 shares of Cord's common stock. On this date, Cord's stock had a market value of \$50 a share. Current assessed values of land and building for property tax purposes are \$187,500 and \$562,500, respectively.
- On March 25, 2006, new parking lots, sidewalks, and sidewalks at the acquired plant facility were completed at a total cost of \$ 320,000. These expenditures had an estimated useful life of 12 years.
- The leasehold improvements were completed on December 31, 2002, and had an estimated useful life of eight years. The related lease, which would terminate on December 31, 2008, was renewable for an additional four-year term. On April 19, 2006, Cord exercised the renewal option.
- On July 1, 2006, machinery and equipment were purchased at a total invoice cost of \$3,000. Additional costs of \$10,000 for delivery and \$50,000 for installation were incurred.
- On August 30, 2006, Cord purchased a new automobile for \$12,300.

- f. On September 30, 2006, a truck with a cost of \$24,000 and a carrying amount of \$9,100 on date of sale was sold for \$5,500. Depreciation for the nine months ended September 30, 2006, was \$2,950.
- g. On December 31, 2006, a machine with a cost of \$7,000 and a carrying amount of \$1,975 at date of disposition was scrapped without cash recovery.

Required:

1. Prepare a schedule analyzing the changes in each of the plant asset accounts during 2006. This schedule should include columns for beginning balance, increase, decrease, and ending balance for each of the plant asset accounts. Do not assume changes in accumulated depreciation and amortization.
2. For each asset category, prepare a schedule showing depreciation or amortization expense for the year ended December 31, 2006. Round computations to the nearest whole dollar.

AICPA adapted.

This problem is a continuation of Problem 14-3 in Chapter 10 focusing on depreciation.

Required:

For each asset classification, prepare a schedule showing depreciation expense for the year ended December 31, 2006, using the following depreciation methods and useful lives:

- Land improvements—Straight line; 5 years.
- Buildings—150% declining balance; 20 years.
- Machinery and equipment—Straight line; 10 years.
- Automobiles—200% declining balance; 5 years.

Depreciation is computed to the nearest month and no residual value is used.

AICPA adapted.

In April 1, 2004, the Kid Toy Company purchased equipment to be used in its manufacturing process. The equipment cost \$48,000, has an eight-year useful life, and has no residual value. The company uses the straight-line depreciation method for all manufacturing equipment.

On January 4, 2006, \$17,350 was spent to repair the equipment and to add a feature that increased its operating efficiency. Of the total expenditures, \$2,000 represented ordinary repairs and annual maintenance and \$15,350 represented the cost of the new feature. In addition to increasing operating efficiency, the new feature halved the equipment's useful life to 4 years.

Required:

Prepare journal entries for the following:

1. Depreciation for 2004 and 2005.
2. The 2006 expenditure.

The Thompson Corporation, a manufacturer of steel products, began operations on October 1, 2004. The accounting department of Thompson has started the fixed-asset and depreciation schedule presented below. You have been asked to assist in completing this schedule. In addition to ascertaining that the data already on the schedule are correct, you have obtained the following information from the company's records and personnel:

- a. Depreciation is computed from the first of the month of acquisition to the first of the month of disposition.
- b. Land A and Building A were acquired from a predecessor corporation. Thompson paid \$812,500 for the land and building together. At the time of acquisition, the land had an appraised value of \$173,000 and the building had an appraised value of \$639,500.
- c. Land B was acquired on October 1, 2004, in exchange for 3,000 newly issued shares of Thompson's common stock. At the date of acquisition, the stock had a par value of \$5 per share and a fair market value of \$25 per share. During October 2004, Thompson paid \$1,400 to demolish an existing building on this land and to clear the area for a new building.
- d. Construction of Building B on the newly acquired land began on October 1, 2005. By September 30, 2006, Thompson had paid \$2,070,000 of the estimated total construction costs of \$2,000,000. Estimated completion and occupancy are July 2007.
- e. Certain equipment was donated to the corporation by the city. An independent appraisal of the equipment when donated placed the fair value at \$16,000 and the residual value at \$2,000.
- f. Machine A's total cost of \$1,000,000 includes installation charges of \$550 and normal repairs and maintenance of \$1,000. Residual value is estimated at \$5,000. Machine A was sold on February 28, 2006.
- g. On October 1, 2005, Machine B was acquired with a down payment of \$4,000 and the remaining payments to be made in 12 equal installments of \$4,000 each beginning October 1, 2006. The prevailing interest rate was 8%.

THOMPSON CORPORATION
Fixed Asset and Depreciation Schedule
For Fiscal Years Ended September 30, 2003 and September 30, 2004

| Assets | Acquisition Date | Cost | Residual | Depreciation Method | Estimated Life in Years | Depreciation for Year Ended 9/30 | |
|--------------------|------------------|---------|----------|--------------------------|-------------------------|----------------------------------|-------|
| | | | | | | 2003 | 2004 |
| Land A | 10/1/04 | \$15 | N/A | N/A | N/A | N/A | N/A |
| Building A and B | 10/1/04 | (20) | \$47,500 | SL | (20) | \$14,000 | \$341 |
| Building B | 10/1/04 | (15) | N/A | N/A | N/A | N/A | N/A |
| Construction | 10/2/04 | 715,000 | 10 | 10 | 10 | 10 | 10 |
| Deer and Equipment | 10/2/04 | (2) | 2,000 | 150% | 10 | (10) | (10) |
| Machine A | 10/2/04 | (10) | 5,500 | Declining balance | 10 | (11) | (12) |
| Machine B | 10/1/05 | (10) | — | Sum-of-the-years'-digits | 15 | — | (14) |

N/A = not applicable

Required:

Supply the correct answer for each distribution item on the schedule. Round each answer to the nearest dollar.

P 11-6

Depreciation methods; partial year depreciation; sale of assets

On March 3, 2006, the Hersey Company purchased a factory complex with machinery and furniture. The allocation of the total purchase price of \$1,000,000 to the various types of assets along with their useful lives and residual values are as follows:

| Asset | Cost | Estimated Residual Value | Estimated Useful Life in Years |
|-----------|-------------|--------------------------|--------------------------------|
| Land | \$100,000 | N/A | N/A |
| Building | 500,000 | none | 25 |
| Machinery | 240,000 | 0% of cost | 8 |
| Equipment | 160,000 | \$13,000 | 6 |
| Total | \$1,000,000 | | |

P 11-7

Excel

P 11-7

Depreciation; change in estimate

P 11-8

Excel

On June 29, 2007, machinery included in the March 31, 2006, purchase that cost \$100,000 was sold for \$50,000. Hersey uses the straight-line depreciation method for buildings and machinery and the sum-of-the-years'-digits method for equipment. Partial-year depreciation is calculated based on the number of months an asset is in service.

Required:

1. Compute depreciation expense on the building, machinery, and equipment for 2006.
2. Prepare the journal entries to record (a) depreciation on the machinery sold on June 29, 2007, and the sale of the machinery.
3. Compute depreciation expense on the building, remaining machinery, and equipment for 2007.

In 2006, the Martin Company purchased land by acquiring a mineral claim for \$1,000,000. Additional costs of \$600,000 were incurred to develop the mine. Geological engineers also estimated that 400,000 tons of ore would be extracted. After the ore is removed, the land will have a resale value of \$100,000.

In addition to the extraction, Martin built various structures and mine storage buildings on the site at a cost of \$150,000. These structures have a useful life of 10 years. The structures cannot be moved after the ore has been removed and will be left at the site. In addition, new equipment costing \$80,000 was purchased for use in the mine. Martin does not plan to move the equipment to another site, but estimates that it will be sold at auction for \$4,000 after the mining project is completed.

In 2006, 90,000 tons of ore were extracted and sold. In 2007, the estimate of total tons of ore in the mine was revised from 400,000 to 487,500. During 2007, 80,000 tons were extracted, of which 60,000 tons were sold.

Required:

1. Compute depletion and depreciation of the mine and the mining facilities and equipment for 2006. Martin uses the units-of-production method to determine depreciation on mining facilities and equipment.
2. Compute the book value of the mineral mine, structures, and equipment as of December 31, 2007.
3. Discuss the accounting treatment of the depletion and depreciation on the mine and mining facilities and equipment.

The following information concerns the intangible assets of Epizon Corporation:

- On June 30, 2006, Epizon completed the purchase of the Johnsonite Corporation for \$7,000,000 in cash. The fair value of the net identifiable assets of Johnsonite was \$1,000,000.
- Included in the assets purchased from Johnsonite was a patent that was valued at \$60,000. The remaining legal life of the patent was 17 years, but Epizon believes that the patent will only be useful for another 10 years.
- Epizon acquired a franchise on December 31, 2006, by paying an initial franchise fee of \$200,000. The contract calls for the franchise to be amortized over 10 years.

Required:

- Prepare year-end adjusting journal entries to record amortization expense on the intangibles as of December 31, 2006.
- Prepare the intangible asset section of the December 31, 2006, balance sheet.

The property, plant, and equipment section of the Jasper Company's November 30, 2005, balance sheet contains the following:

| | | |
|--------------------------------------|-----------|-----------|
| Property, plant, and equipment | | |
| Land | | \$120,000 |
| Building | \$840,000 | |
| Less Accumulated depreciation | (200,000) | 640,000 |
| Equipment | 180,000 | |
| Less Accumulated depreciation | 70,000 | 110,000 |
| Total property, plant, and equipment | | \$870,000 |

The land and building were purchased at the beginning of 2001. Straight-line depreciation is used and a residual value of \$40,000 for the building is anticipated.

The equipment is composed of the following three machines:

| Machine | Cost | Date Acquired | Residual Value | Life in Years |
|---------|----------|---------------|----------------|---------------|
| 101 | \$70,000 | 1/1/03 | \$7,000 | 10 |
| 102 | 80,000 | 6/30/04 | 8,000 | 8 |
| 103 | 30,000 | 9/1/05 | 3,000 | 5 |

The straight-line method is used to determine depreciation on the equipment. On March 31, 2006, Machine 102 was sold for \$23,000. Early in 2006, the useful life of machine 101 was revised to seven years in total and the residual value was determined to be zero.

Required:

- Calculate the accumulated depreciation on the equipment as of December 31, 2006.
- Prepare the journal entry to record the sale of machine 102. Also prepare the journal entry to record 2006 depreciation on machine 102 up to the date of sale.
- Prepare the 2006 year-end adjusting journal entries to record depreciation on the building and equipment.

Described below are three independent and unrelated situations involving accounting changes. Each change occurs during 2006 before any adjusting entries or closing entries are prepared.

- On December 30, 2002, Riva Industries acquired its office building at a cost of \$1,000,000. It has been depreciated on a straight-line basis assuming a useful life of 40 years and no residual value. However plans were finalized in 2006 to relocate the company headquarters at the end of 2006. The vacated office building will have a residual value at that time of \$700,000.
- At the beginning of 2006, the Hamilton Group purchased office equipment at a cost of \$330,000. Its useful life was estimated to be 10 years with no residual value. The equipment has been depreciated by the sum-of-the-years'-digits method. On January 1, 2006, the company changed to the straight-line method.
- At the beginning of 2006, Justice Securities, which uses the sum-of-the-years'-digits method, changed to the straight-line method for newly acquired buildings and equipment. The change increased current year net income by \$445,000.

Required:

For each situation:

- Identify the type of change.
- Prepare any journal entry necessary as a financial result of the change as well as any adjusting entry for 2006 related to the situation described (if gross income tax effects).
- Briefly describe any other steps that should be taken to appropriately report the situation.

P 11-1
Error correction
change in depreciation
method

■ C2 C3 C4

Collier Corporation purchased office equipment at the beginning of 2004 and capitalized a cost of \$2,000,000. This cost figure included the following expenditures:

| | |
|---------------------------|--------------------|
| Purchase price | \$ 850,000 |
| Freight charges | 20,000 |
| Installation charges | 20,000 |
| Annual maintenance charge | 100,000 |
| Total | <u>\$2,000,000</u> |

The company estimated an eight-year useful life for the equipment, but residual value is not expected. The double declining balance method was used for depreciation expense for 2004 and 2005.

In 2006, after the 2005 financial statements were issued, the company decided to switch to the major depreciation method for the equipment. In 2006, the company's controller discovered that the original cost of the equipment incorrectly included one year of annual maintenance charges for the equipment.

1. Ignoring income taxes, prepare the appropriate correcting entry for the equipment capitalization error discovered in 2006.
2. Ignoring income taxes, prepare any 2006 journal entry(s) related to the change in depreciation method.

P 11-12
Deferred portion and
impairment of
operating assets

■ C2 C4 C8

At the beginning of 2004, Melapex, Inc., acquired Elixon Technology Corporation for \$650 million. In addition to cash, receivables, and inventory, the following intangibles were acquired:

| | |
|--|---------------|
| Plant and equipment (depreciable assets) | \$150 million |
| Patent | 40 million |
| Goodwill | 460 million |

The plant and equipment are depreciated over a 10-year useful life on a straight-line basis. There is no estimated residual value. The patent is estimated to have a 5-year useful life, no residual value, and is depreciated using the straight-line method.

At the end of 2006, a change in business climate indicated to management that the operations of Melapex might be impaired. The following amounts have been determined:

| | |
|--|---------------|
| Plant and equipment | |
| Unamortized sum of future cash flows | \$ 80 million |
| Fair value | 90 million |
| Patent | |
| Unamortized sum of future cash flows | \$ 20 million |
| Fair value | 3 million |
| Goodwill | |
| Fair value of Elixon Technology | \$450 million |
| Fair value of Elixon's net assets (including goodwill) | 390 million |
| Book value of Elixon's net assets (including goodwill) | 470 million* |

*At the end of 2006, any impairment loss is allocated first to goodwill, then to plant and equipment, and finally to the patent.

Required:

1. Compute the book value of the plant and equipment and patent at the end of 2006.
2. When should the plant and equipment and the patent be tested for impairment?
3. When should goodwill be tested for impairment?
4. Determine the amount of any impairment loss to be recorded, if any, for the three assets.

BROADEN YOUR PERSPECTIVE



Analysis Case
Depreciation,
depletion, and
amortization

■ C3

Apply your critical thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

The terms depreciation, depletion, and amortization all refer to the process of allocating the cost of a resource over the periods the useful life.

Analysis 1

Discuss the differences between depreciation, depletion, and amortization as the terms are used in accounting for intangible assets.

As a result of this chat, you were invited next to Mr. Hupkins, the president of a local company that manufactures bicycle parts. He heard that you were a CPA and made the following comments to you:

Why is it that I am forced to recognize depreciation expense on my company's income statement when I know that I could sell many of my operational assets for more than I paid for them? I thought that the purpose of the balance sheet was to reflect the value of my business and that the purpose of the income statement was to report the net change in value or wealth of a company. It just doesn't make sense to penalize my profits when there hasn't been any loss in value from using the operational assets.

At the conclusion of the luncheon, you promised to send him a short explanation of the rationale for current depreciation practices.

Required

Prepare a letter to Mr. Hupkins. Explain the accounting concept of depreciation and include a brief example of an expenditure showing that even if the asset is sold for more than the approach for depreciation and the allocation of the approach will be in the net loss effect on income.

Portland Co. uses the straight-line depreciation method for depreciable assets. All assets are depreciated individually except manufacturing machinery, which is depreciated by the composite method.

Required

- What factors should have influenced Portland's selection of the straight-line depreciation method?
- What benefits should derive from using the composite method rather than the individual basis for manufacturing machinery?
 - How should Portland have calculated the manufacturing machinery's annual depreciation in its first year of operation?

AICPA adapted.

At the beginning of the year, Patrick Company acquired a computer to be used in its operations. The computer was delivered by the supplier, installed by Patrick, and placed into operation. The estimated useful life of the computer is five years, and its estimated residual value is significant.

Required

- What costs should Patrick capitalize for the computer?
 - What is the objective of depreciation accounting?
- What is the rationale for using accelerated depreciation methods?

AICPA adapted.

Redline Publishers, Inc., produces various manuals ranging from computer software instructional booklets to manuals explaining the installation and use of large pieces of industrial equipment. At the end of 2006, the company's balance sheet reported total assets of \$67 million and total liabilities of \$40 million. The income statement for 2006 reported net income of \$11 million, which represents an approximate 3% increase from the prior year. The company's effective income tax rate is 30%.

Near the end of 2006, a variety of expenditures were made to overhaul the company's manufacturing equipment. None of these expenditures exceeded \$750 (the materiality threshold); the company has set for the capitalization of any such expenditure. Even though the overhauls extended the service life of the equipment, the expenditures were expensed, not capitalized.

John Henderson, the company's controller, is worried about the treatment of the overhaul expenditures. Even though no individual expenditure exceeded the \$750 materiality threshold, total expenditures were \$200,000.

Required

Should the overhaul expenditures be capitalized or expensed?

The focus of the case in the situation described in the previous case. Your instructor will divide the class into four to six groups depending on the size of the class. The mission of your group is to determine the treatment of the overhaul expenditures.

Required

- Each group member should deliver to the situation independently and draft a persuasive argument prior to the class session for which the case is assigned.
- In class, each group will meet for 10 to 15 minutes in different areas of the classroom. During the meeting, group members will take turns sharing their suggestions for the purpose of arriving at a single group treatment.
- After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's position with the class. The goal of the class is to incorporate the views of each group into a consensus approach to the case.

Integrating Case 11-7
Error: change in estimate, change in principle, inventory and operational assets

• LOS through LO7

Wholey Corporation is a wholesale distributor of electronic components. Financial statements in the current year are as follows. Note: All amounts are in millions of dollars.

| | Assets | Liabilities | Shareholders' Equity | Net Income | Expenses |
|------|--------|-------------|----------------------|------------|----------|
| 2005 | \$640 | \$330 | \$310 | \$210 | \$150 |
| 2006 | \$820 | \$400 | \$420 | \$230 | \$175 |

In 2007 the following situations occurred in order to (a):

- Identify errors. The errors that ending inventories reported in the financial statements of the previous year were considered due to faulty journal entries. The errors were in the following amounts:

| | |
|----------------|-----------------------------|
| 2005 inventory | Overstated by \$12 million |
| 2006 inventory | Understated by \$16 million |

- A patent, costing \$18 million at the beginning of 2005, expected to benefit operations for a total of 10 years, has not been amortized since acquired.
- Wholey's computer equipment has been depreciated by the sum-of-the-years'-digits (SYD) method since acquisition at the beginning of 2005 at a cost of \$30 million. It has an expected useful life of 5 years and no expected residual value. At the beginning of 2007, Wholey decided to switch to straight-line depreciation.

Required:

For each situation:

1. Prepare any journal entry necessary as a direct result of the change or error correction as well as an adjusting entry for 2007 related to the situation described. (Ignore tax effects.)

- Determine the amounts to be reported for each of the years shown above from the 2005 and 2006 financial statements when these amounts are reported again in the 2007, 2006, and 2005 comparative financial statements.

Learning Objective 1
Accounting changes

• LO1

There are various types of accounting changes, each of which is required to be reported differently.

1. What type of accounting change is a change from the sum-of-the-years'-digits method of depreciation to the straight-line method for previously recorded assets? Under what circumstances does this type of accounting change occur?

- What type of accounting change is a change in the expected service life of an asset arising from more experience with the asset? Under what circumstances does this type of accounting change occur?

Learning Objective 2
Operational assets

• LO2

The owners of TruStone are interested in using this chapter. The case provides an excellent opportunity for class discussion, group projects, and writing assignments. The case along with the Discussion Material can be obtained from the Deloitte & Touche Foundation at its website: http://www.deloitte.com/US/industry/us_foundation.

Case 14-2 Home Computer, Inc.

The objectives of this case are (a) to determine if Home Computer should recognize an impairment loss on operational assets and, (b) to calculate the amount of the loss.

The company controller, Barry Melrose, has asked for your help in interpreting accounting standards for the recognition and measurement of impairment losses for operational assets. "We have a significant amount of goodwill on our books from last year's acquisition of Cornet Corporation. Also, I think we may have problems with the assets of some of our factories on West. And one of our divisions is currently having problems disposing of a large group of depreciable assets."

You ask, as assistant controller, to research the issue.

Required:

- Obtain the original FASB Standards on accounting for the impairment of operational assets. Set up your own access through FARS (the FASB Financial Accounting Research System) from your school's website.
- When should operational assets be tested for impairment?
- Explain the processes for measuring an impairment loss for operational assets to be held and used.
- What are the specific criteria that must be met for an asset or asset group to be classified as held for sale?
- Explain the processes for measuring an impairment loss for operational assets classified as held for sale.

Learning Objective 3
Goodwill and other intangible assets

• LO3

At the beginning of 2004, the Healthy Life Food Company purchased equipment for \$42 billion to be used in the manufacture of a new line of gourmet frozen foods. The equipment was estimated to have a 10-year service life and no residual value. The straight-line depreciation method was used to measure depreciation over 10 years.

Later in 2006, it became apparent that sales of the new frozen food line were significantly below expectations. The company decided to continue production for two more years (2007 and 2008) and then discontinue this line. At that time, the engineers will be able to estimate the residual scrap value.

The controller, Heather Meyer, was asked by Harvey Cole, the company's chief executive officer (CEO), to determine the appropriate treatment of the change in service life of the equipment. Heather determined that there has been an impairment in value resulting in unavoidable write-downs of the equipment of \$10 million. The remaining book value would then be depreciated over the equipment's revised service life.

The CEO likes how Heather's conclusion is because of the effect it will have on 2006 earnings. "Looks like a simple revision in service life from 10 years to 5 years to do," Dent concluded. "Let's go with it that way, Heather."

For you:

1. What is the difference in treatment between the CEO's and Heather's treatment of the situation?
2. Discuss Heather Meyer's ethical dilemma.

Companies often are under pressure to meet or beat Wall Street earnings projections in order to increase stock prices and also to increase the value of stock options. Some resort to earnings management practices that artificially create desired results.

Required:

1. How can a company manage earnings by changing its depreciation method? Is this an effective technique to manage earnings?
2. How can a company manage earnings by changing the estimated useful lives of depreciable assets? Is this an effective technique to manage earnings?
3. Give a financial example and explain how you make up. Determine in your own words how asset impairment losses could be used to manage earnings. How might that benefit the company?

The earnings Company charged for its expenditures made during 2006 in an attempt to repair and maintain its equipment. The expenditures were determined to be appropriate and the company's are not audited. The expenditures included in the account are as follows:

1. Engine tune-up and oil change on the company's 12 delivery trucks—\$1,000
2. Reorganization of machinery on the main production line—\$5,500. It is not evident that the reorganization will increase operational efficiency.
3. Installation of aluminum siding on the manufacturing plant—\$32,000
4. Replacement of the old air conditioning system in the manufacturing plant with a new system—\$10,000
5. Replacement of broken parts on three machines—\$ 500
6. Annual painting of the manufacturing plant—\$ 1,000
7. Purchase of new forklift to move finished product to the loading dock—\$6,000
8. Patching leaks in the roof of the manufacturing plant—\$6,500. The repair work did not extend the useful life of the roof.

Required:

For each of the transactions listed above, indicate whether the expenditure is appropriately charged to the repair and maintenance expense account, and if not, indicate the proper account to be charged.

International Business Machines Corporation (IBM) reported the following in the asset section of its balance sheets for the years ended December 31, 2004 and 2003.

| | 2004 | 2003 |
|--|-----------------|-----------------|
| (\$ in millions) | | |
| Plant, rental machines, and other property | \$36,785 | \$36,157 |
| Less Accumulated depreciation | 21,110 | 21,454 |
| Plant, rental machines, and other property—net | <u>\$15,675</u> | <u>\$14,699</u> |

The following note was included as a part of the Significant Accounting Policies disclosure note in IBM's 2004 financial statements:

Depreciation

Plant, rental machines, and other property are carried at cost and depreciated over their estimated useful lives using the straight-line method.

Also, Nike C disclosed that the total cost of plant, rental machines, and other property included is \$1 million and \$125 million in land and land improvements at the end of 2004 and 2003, respectively. In addition, the statement of cash flows for the year ended December 31, 2004, reported the following amounts: Cash flows from investing activities:

| | |
|---|-----------|
| Payments for plant, rental machines, and other property | \$(5,248) |
| Proceeds from disposition of plant, rental machines, and other property | 1 |

The statement of cash flows also reported 2004 depreciation of \$3,809 million.

Required:

1. Assume that all plant, rental machines, and other property acquired during 2004 were purchased cash. Determine the amount of gain or loss from dispositions of plant, rental machines, and other property recognized during 2004. Assume that the entire amount reported in Nike C's land and land improvements requirements was not depreciated. What is the approximate average service life of Nike C's depreciable assets?

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated request valuations, analyzing, and forwarding of submissions by companies and others who are required by the SEC to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. Some foreign companies file voluntarily. Form 10-K or 10-KSB, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.

Required:

1. Access EDGAR on the Internet. The web address is www.sec.gov/edgar/sec.gov. (You may also access the site from ProConnect.) Enter the process of accessing data from EDGAR easier.
2. Search for Thermotrace Corporation. Access the 10-K filing for most recent fiscal year available. (You may find the financial statements are released online.)
3. Answer the following questions related to the company's operations: assets:
 - a. Describe the company's depreciation and depletion policies.
 - b. Describe the company's policy for subsequent expenditures made for operational assets.

Refer to the financial statements and related disclosure notes of FedEx Corporation at Appendix B available at the back of this text.

Required:

1. What amount of depreciation and amortization did the company report in 2004?
2. What depreciation method is used for financial reporting purposes and what are the service lives and residual values of depreciable assets? What depreciation method is used for income tax purposes?

Real World Case 11-15

Depreciation and depletion method asset impairment subsequent expenditures

• 102 103 108 109

Depreciation and amortization

• 102 104

FedEx Corporation

Yamashita Kyle
Practical Accounting

KAPLAN
CPA Review

Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulation software at www.kaplan.com/cpasimulation.

The Yamashita Kyle simulation tests your knowledge of (a) depreciation methods including joint and several depreciation, and the measurement of impairment of value for tangible, operational assets covered in Chapter 10, and (b) accounting for the disposal of operational assets, the capitalization of interest, and subsequent expenditures discussed in Chapter 10.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and professional accounting standards, to conduct research, derive solutions, and communicate conclusions. In these stages in a simulated environment headed by the following interactive tabs:



Financial Instruments and Liabilities

3
SECTION

12

CHAPTER

Investments

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Demonstrate how to identify and account for investments classified for reporting purposes as held-to-maturity
- LO2 Demonstrate how to identify and account for investments classified for reporting purposes as available-for-sale
- LO3 Demonstrate how to identify and account for investments classified for reporting purposes as trading securities
- LO4 Explain what constitutes significant influence by the investor over the operating and financial policies of its investee
- LO5 Demonstrate the way investments are recorded and reported by the equity method
- LO6 Explain the adjustments made in the equity method when the fair value of the net assets underlying an investment exceeds their book value at acquisition

FINANCIAL REPORTING CASE



A Case of Coke

You are the income sectioning major in your five-member group in your Business Policy class. A part of the case your group is working on is the analysis in the financial statements of the Coca-Cola Company.

The marketing major in the group is confused by the following disclosure note from Coca-Cola's 2004 annual report:

Note B: Financial Instruments (in part):

ERTAIN DEBT AND MARKETABLE EQUITY SECURITIES

Investments in debt and marketable equity securities, other than investments accounted for by the equity method, are categorized as either trading, available-for-sale or held-to-maturity. On December 31, 2003 and 2002, we had no trading securities. Securities categorized as available-for-sale are stated at fair value with unrealized gains and losses, net of deferred income taxes, reported as a component of accumulated other comprehensive income. Debt securities categorized as held-to-maturity are stated at amortized cost.

On December 31, 2004, available-for-sale and held-to-maturity securities consisted of the following (in millions):

| December 31, 2004 | Cost | Gross Unrealized Gains | Losses | Estimated Fair Value |
|--------------------------------------|---------|------------------------|--------|----------------------|
| Available-for-sale securities | | | | |
| Equity securities | \$ 144 | \$148 | \$12 | \$ 280 |
| Other debt securities | 5 | - | (7) | 4 |
| | \$ 149 | \$148 | \$ (1) | \$ 292 |
| Held-to-maturity securities | | | | |
| Bank and corporate debt | \$4,879 | \$ - | \$ - | \$4,879 |
| Other debt securities | 162 | \$ - | \$ - | 162 |
| | \$4,506 | \$ - | \$ - | \$4,586 |

"They say unrealized gains and losses are reported as part of comprehensive income? I don't see these gains and losses on the income statement," he complained. "Maybe comprehensive income is something else altogether. And held-to-maturity securities—why are they treated differently?"

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your responses to the solution provided at the end of the chapter.

15

How should you respond? Why are held-to-maturity securities treated differently from other investment securities? (page 562)

- Why are unrealized gains and losses on available-for-sale securities not reported on the income statement? (page 564)
- What is comprehensive income? (page 504)
- Anticipate his next question and explain why Coke accounts for some of its investments by the equity method and why that means. (page 516)

Most companies invest in financial instruments issued by other companies. For some investors, these investments represent ongoing affiliations with the companies whose securities are acquired. For instance, in 2004 Hewlett acquired all the common stock of VeriSign, becoming the nation's third-largest issuer. Microsoft invested \$600 million in nation's wireless phone company Nextel Communications Inc., gaining access to wireless Internet users. Some investments, though, are made not to obtain a favorable business relationship with another firm but simply to earn a return from the dividends or interest the securities or from increases in the market prices of the securities—the same prospective rewards that might motivate you to buy stocks, bonds, or other investment securities. With such different investment objectives, it is understandable that no single accounting method is adequate to report every investment. As you'll discover when reading this chapter, investments are accounted for in six ways, depending on the nature of the investment relationship. Before we discuss these in detail, see the quick overview of the six approaches in Graphic 12-1.

GRAPHIC 12-1
Reporting Categories
for Investments

| Investment Relationship | Reporting Method |
|--|--|
| The investor controls the investee
The investor can exercise significant influence over the investee | Consolidation—financial statements are combined as if a single company |
| The investor can "significantly influence" the operating and financial policies of the investee
Typically, the investor owns between 20% and 50% of the investee's voting stock | Equity method—reflects effects of subsequent growth of the investee |
| The investor cannot "significantly influence" the operating and financial policies of the investee
Investor has no significant influence over the investee's operating and financial policies | Held-to-maturity—investor reports as a debt security |
| Investment acquired and sold in short period of time—immediate buyer or seller is a company | Securities available-for-sale—investor reports at fair value with unrealized gains and losses (excluding impairment) as a part of comprehensive income |
| Investment held in order to trade quickly for profit or to hedge a position | Trading securities—investor reports at fair value with unrealized gains and losses included in earnings |
| For all other investments not determinable | Cost method—investment reported at cost |

We discuss the last four categories in Part A of the chapter. The equity method is discussed in Part B as well as an abbreviated discussion of consolidated statements.

PART A

ACCOUNTING FOR INVESTMENT SECURITIES



To finance its operations and often the expansion of those operations, a corporation uses funds by selling equity securities (common and preferred stock) and debt securities (bonds and notes). These securities are purchased as investments by individual investors, mutual funds, and also by other corporations. In later chapters we discuss equity and debt securities from the perspective of the issuing company. Our focus in this chapter is on the corporation that invests in securities issued by other corporations as well as those issued by governmental units (bonds, Treasury bills, and Treasury bonds).

For reporting purposes, all investments in *debt securities* and investments in *equity securities* that have readily determinable fair values (except those for which the equity method or measurement is appropriate) are classified in one of three categories and accounted for differently depending on the classification as shown in Graphic 12-2.

| Reporting Category | Classification Criteria |
|-------------------------------|---|
| Available-for-sale securities | <ul style="list-style-type: none"> • Not held to maturity • Not held for sale • Not classified as trading securities |
| Trading securities | <ul style="list-style-type: none"> • Held to maturity • Held for sale • Classified as trading securities |

GRAPHIC 12-2

Reporting Categories for Investments in Marketable Securities

In all three categories, we include in the determination earnings recognition and losses therefrom when we see the appropriate business activity. Earnings and losses are included in the determination of earnings in these categories. The difference in accounting treatment among the categories of securities arise with respect to unrealized gains and losses, those that arise from holding securities during a period when their market prices change.

As you know, the purpose of accounting is to provide information useful in making decisions. What's most relevant for that purpose is not necessarily the same for each investment manager might make. For example, day-to-day changes in market value are less descriptive of investment success for an investment in corporate bonds that management *fully expects to hold until the bonds mature* than for an investment in the common stock of another company *acquired with the hope of profiting from market price changes*. Let's examine the three reporting classifications, one by one.

Securities to Be Held to Maturity

A share of stock, a bond or other debt security has a specified date on which it matures. On its maturity date, the "face amount" is paid to investors. In the meantime, interest is paid at a specified percentage of the face amount is paid to investors on specified interest dates. However, even though the maturity amount is fixed and interest payments are fixed, this doesn't mean the market value of the security doesn't change. On the contrary, if "market" rates of interest *rise* after a fixed-rate security is purchased, the value of the security *falls* below market. If "market" interest payments *fall*, the market value of the investment *rises*. Conversely, if "market" rates of interest *fall* after a fixed-rate security is purchased, the fixed interest payments become relatively attractive, so the market value of the investment rises.

Are these movements in market price relevant? Not if the investor has no intention of selling the investment before maturity. Increases and decreases in the market value between the time a debt security is acquired and the day it matures to a prearranged maturity value are less important if sale before maturity isn't an alternative. For this reason, if an investor has the "positive intent and ability"

to hold

The market value of a security is the price it can be sold for in the market. It is the value of the security at the time it is sold.

Investment managers who are looking for a return on their investment will be interested in the market value of the security at the time it is sold.

Available-for-Sale
The first choice to make when classifying a security is whether it is available-for-sale. If it is, it is classified as available-for-sale. If it is not, it is classified as held-to-maturity or trading. If it is available-for-sale, it is classified as available-for-sale. If it is not, it is classified as held-to-maturity or trading. If it is available-for-sale, it is classified as available-for-sale. If it is not, it is classified as held-to-maturity or trading.

to hold the securities to maturity. Investments in debt securities are classified as held to maturity and reported at amortized cost in the balance sheet.

A debt security is not classified as held-to-maturity if the investor might sell it in response to changes in market prices or interest rates, to meet the investor's liquidity needs, or due to facts and circumstances indicating that the security will not be classified as held to maturity. The investor must not intend to hold the security to maturity. An investment in securities to be held to maturity on the date of acquisition is classified as held to maturity.

Illustration 12-1 Held-to-Maturity Securities

On January 2, 2016, Hideo Intergroup Inc. purchased as an investment \$700,000 of 2% bonds. Because the 2% stated rate was less than the rate paid by other companies on similar bonds (say, 4%), Hideo was able to buy the securities at a discounted price of \$666,633. Interest is \$42,000 (\$700,000 × 2% × 2) is receivable semiannually on June 30 and December 31.

Purchase of Investment. The journal entry to record the purchase of investment securities is

| | | |
|--|---------|---------|
| January 1 | | |
| Investment in bonds (face amount) | 700,000 | |
| Discount on bond investment (difference) | | 33,367 |
| Cash (price paid for the bonds) | | 666,633 |

Investment Revenue. Interest accrues on bonds, or any other interest-bearing security, in full amount at a constant percentage of the investment each period. Of course, under the accrual method, the periodic interest is unaffected by when the cash interest actually is received. Regarding interest each period, the *effective market rate* is multiplied by the *outstanding balance of the investment* (during the interest period) is referred to as the *effective interest method*. This simply is an application of the accrual concept—interest with accruing all revenues as they are earned, regardless of when cash is received.

Continuing our example, the initial investment is \$666,633. Since the effective interest rate is 4%, interest recorded as revenue is the investor for the first six-month interest period is

$$\begin{array}{rcll} \$666,633 & \times & 4\% \div 2 & = & \$13,333 \\ \text{Outstanding balance} & & \text{Effective rate} & & \text{Effective interest} \end{array}$$

However, the bond security calls for semiannual interest payments of only \$42,000 (the stated rate (6%) times the face amount (\$700,000)). As always, when only a portion of revenue is received, the remainder becomes an asset—in this case an addition to the cost of investment. So the difference \$4,664, because the investment was reflected as a reduction in the discount (a valuation account). The journal entry to record the interest received in the first six months as investment revenue is

| | | |
|--|--------|-------|
| June 30 | | |
| Cash (stated rate × face amount) | 42,000 | |
| Discount on bond investment (difference) | | 4,664 |
| Investment revenue (market rate × outstanding balance) | | |

The amortized cost of the investment now is \$700,000 (\$666,633 + \$4,664) = \$671,297, which is higher than the original investment. Because the balance of the investment increases each period, the dollar amount of interest revenue (market rate × outstanding balance) also will increase each period. We discuss this in much greater detail in Chapter 13.

Reporting Investments in Securities to Be Held to Maturity. Securities held to maturity are recorded at cost as illustrated above, and holding gains or losses from price changes are ignored. So if the market value of the investment were to increase in

554,033 at January 1, to, say, 5680,000 at June 30, we would ignore that holding gain and report the investment in a balance sheet at that date at its amortized cost of 567,297 as discussed above.

| | |
|-----------------------------------|----------|
| Investment in bonds | 5700,000 |
| Less: Discount on bond investment | 28,703 |
| Book value (amortized cost) | 567,297 |

We will not have a discussion of investments in debt securities to be held to maturity in this chapter. Bonds and long-term notes are the types we are more likely to see discussed in this chapter. The issuer issues bonds and by the company that invests in those bonds is often the parallel; that is, each side of the transaction is the mirror image of the other. When we have our discussion of bond investments at that point, be sure to notice that we continue the same conceptual illustration we began in this chapter.

Let us turn our attention now to accounting and reporting for investments referred to as "securities available-for-sale" and "trading securities." These include investments in debt securities that are not classified as held-to-maturity and equity securities that have readily determinable fair values. You'll notice that, unlike held-to-maturity securities, we report investments in the other two categories at their fair market values.

Figure 12-3 provides a description from a recent annual report of how United Community Financial Corporation accounts for its investments in each of the three reporting categories.

Note on Profit Investment and Mortgage Backed Securities

These securities are available for sale and are reported at fair value upon their original acquisition. Changes in fair value are reported in other comprehensive income. These securities are classified as held-to-maturity, available-for-sale, or trading securities. Held-to-maturity securities are reported at amortized cost. Available-for-sale securities are reported at fair value. Trading securities are reported at fair value and changes in fair value are reported in net income. The classification of these securities is based on the intent of the investor at the time of acquisition.

GRAPHIC 12-3

Investments in Securities to Be Held to Maturity, United Community Financial Corporation

Obviously, not all investments are intended to be held to maturity. When an investment is acquired to be held for an unspecified period of time, we classify the investment as either (a) "securities available-for-sale" or (b) "trading securities." The trading securities category consists primarily of banks and other financial institutions who frequently buy and sell securities in order to earn profits on short-term changes in price. On the other hand, securities available-for-sale is a more general classification that includes all investments other than trading securities and securities to be held to maturity. So we discuss less restrictive securities available-for-sale categories first.

Securities Available-for-Sale

When you or I buy stock in a corporation, say Coca-Cola, we hope the market value will rise before we sell it. We also might look forward to the cash dividends Coca-Cola pays its shareholders every three months. We may even have fairly defined criteria for when we plan to sell the stock, or we may intend to wait and see what happens to market prices. In either case, our investment is available to sell given the right combination of market factors and our own cash situation. So it often is, too, with companies who invest in the securities of other corporations or

Securities available-for-sale are reported at fair value. The amount paid cost is shown in part because of the effects of a manager's decision to buy or sell at a specific time or to continue to hold for an unspecified period of time.

LO2

Purchase of Investment. The journal entry to record the purchase of investment securities is:

| | | |
|-------------------------|----------------|-----|
| November 1 | \$ in millions | |
| Investment in ABM notes | 120 | |
| Cash | | 120 |

All investment securities are initially recorded at cost.

Investment Revenue. The journal entry to record the cash interest is:

| | | |
|--------------------|----------------|---|
| November 30 | \$ in millions | |
| Cash | 3 | |
| Investment revenue | | 3 |

Interest and interest income are included in earnings.

Sale of Investments. The journal entry to record the sale of the ABM Corporation stock is:

| | | |
|--------------------------------|----------------|-----|
| December 1 | \$ in millions | |
| Cash | 133 | |
| Investment in ABM notes | | 120 |
| Unrealized gain on investments | | 13 |

Realized gains and losses are included in earnings.

Purchase of Investments. The journal entry to record the purchase of investment securities is:

| | | |
|---------------------------------|----------------|----|
| December 21 | \$ in millions | |
| Investment in Millington shares | 30 | |
| Investment in Bartlett shares | 20 | |
| Cash | | 50 |

All investment securities are initially recorded at cost.

Adjusting Investments to Fair Value. Reporting investments at their fair values requires that we determine their carrying amounts, or changes in carrying amounts, after their acquisition. For the 2012 reporting year, they were recorded at their cost. Any changes in carrying amounts, including gains and losses, because they haven't yet been realized through the sale of securities, must be recorded (or updated) any time annual statements are prepared for external use. The journal entry to adjust the investments in our illustration to fair market value at year-end is:

| \$ in millions | | | |
|-------------------------------|------|------------|------------------------|
| Available-for-Sale Securities | Cost | Fair value | Unrealized Gain (Loss) |
| Millington Industries shares | \$30 | \$35 | \$5 |
| Bartlett Corporation shares | 20 | 9 | (11) |
| Total | \$50 | \$44 | \$6* |

December 31

| | |
|-------------------------------------|---|
| Unrealized holding gains and losses | 6 |
|-------------------------------------|---|

*The \$6 million unrealized holding gains and losses on these securities are calculated as follows: \$35 million (fair value of Millington shares) minus \$30 million (cost) equals \$5 million change. The \$11 million change in the carrying amount of Bartlett shares is \$20 million (cost) minus \$9 million (fair value) equals \$11 million change.

| | (\$ in millions) |
|--|------------------|
| Net income | \$500 |
| Net comprehensive income | |
| Net unrealized holding gains (losses) from investments held at fair value | \$4 |
| Net unrealized holding gains (losses) from and amendments to postretirement benefit plans, net of tax ¹ | 10 |
| Deferred gains (losses) from derivatives, net of tax ² | 2 |
| Net losses from foreign currency translation method adjustments | 2 |
| Comprehensive income | \$518 |

1. The amount of the net unrealized holding gains (losses) from investments held at fair value is determined by the change in the fair value of the investments held at fair value during the period. The amount of the net unrealized holding gains (losses) from and amendments to postretirement benefit plans, net of tax, is determined by the change in the fair value of the postretirement benefit plans, net of tax, during the period. The amount of the net unrealized holding gains (losses) from derivatives, net of tax, is determined by the change in the fair value of the derivatives, net of tax, during the period. The amount of the net losses from foreign currency translation method adjustments is determined by the change in the fair value of the foreign currency translation method adjustments during the period.

To communicate the relationship between the two measures, companies must report both net income and comprehensive income and reconcile the difference between the two. We will discuss the financial statements of the instructions in Illustration 12-28.

| Income Statement | | (\$ in millions) |
|---|-------|------------------|
| Revenues | | \$ 4 |
| Expenses | | (4) |
| Other income (Expense) | | |
| Interest revenue | | 1 |
| Gain on sale of investments | | 3 |
| Net income | | \$ 8 |
| Other Comprehensive Income ¹ | | |
| Net unrealized holding gain on investments | | \$ 4 |
| Balance Sheet | | |
| Assets | | |
| Investments available for sale | 550 | |
| Investment value adjustment | 4 | \$ 54 |
| Liabilities | | |
| Accrued interest | | |
| Shareholders' Equity | | |
| Accumulated other comprehensive income | | |
| Net unrealized holding gain (loss) | | \$ 4 |
| Statement of Cash Flows | | |
| Operating Activities | | |
| Interest revenue | \$ 1 | |
| Investing Activities | | |
| Proceeds from sale of investment securities | \$120 | |
| Acquisition of investment securities | \$123 | |
| Financing Activities | | |
| Dividends received | | |

1. The amount of the net unrealized holding gain (loss) on investments is determined by the change in the fair value of the investments held at fair value during the period. The amount of the net unrealized holding gain (loss) on investments is determined by the change in the fair value of the investments held at fair value during the period. The amount of the net unrealized holding gain (loss) on investments is determined by the change in the fair value of the investments held at fair value during the period.

ILLUSTRATION 12-2A

Comprehensive Income

Comprehensive income is the total change in equity of a company during a period, including all changes in equity, including those that are not included in net income. It includes net income and other comprehensive income.

ILLUSTRATION 12-2B

Reporting Securities Available-for-Sale

Only realized gains and losses on securities available-for-sale are included in net income. Unrealized gains and losses on securities available-for-sale are included in other comprehensive income.

Comprehensive income is the total change in equity of a company during a period, including all changes in equity, including those that are not included in net income. It includes net income and other comprehensive income.

Unrealized gains and losses on securities available-for-sale are included in other comprehensive income.

Shareholders' equity is the total amount of equity owned by the shareholders of a company. It includes common stock, preferred stock, and retained earnings.

Cash flows are the changes in cash and cash equivalents of a company during a period. They are classified into operating, investing, and financing activities.

| | |
|-------------------|--|
| Retained earnings | Accumulated other comprehensive income |
| Net income | Other comprehensive income |
| Retained earnings | Accumulated other comprehensive income |

Graphic 12-4

Investments in Securities Available for Sale—Cisco Systems

In addition to reporting the unrealized holding gains or losses that occur in the current reporting period, \$4 million in this instance, we must also report these amounts on a cumulative basis in the balance sheet. This is consistent with the way we report net income and total earnings. Comprehensive income includes (a) net income and (b) other comprehensive income. We report net income that occurs in the current reporting period in the income statement and also report *accumulated* net income (that has been distributed as dividends in the balance sheet) as accumulated earnings. Similarly, we report other comprehensive income that occurs in the current reporting period in the balance sheet and also report *accumulated* other comprehensive income in the balance sheet. After completion of the 2006 transaction, the balance sheet and income statement are shown in Illustration 12-1B.

Individual securities available for sale are classified as either current or noncurrent asset depending on how long they're likely to be held. An example from the 2004 annual report of Cisco Systems is shown in Graphic 12-4.

2. Summary of Significant Accounting Policies (in part)

The Company's investments consist of bonds, equity securities, and other securities. Investments with original terms that are less than one year are considered short-term investments. Investments with original terms of one year or more are considered long-term investments. The Company's investments are classified as either current or noncurrent assets depending on how long they are likely to be held. The Company's investments are recorded in the consolidated Balance Sheet at fair value. Unrealized gains and losses on these investments are included as a separate component of accumulated other comprehensive income, net of tax.

The Company's investments consist of bonds, equity securities, and other securities. Investments with original terms that are less than one year are considered short-term investments. Investments with original terms of one year or more are considered long-term investments. The Company's investments are classified as either current or noncurrent assets depending on how long they are likely to be held. The Company's investments are recorded in the consolidated Balance Sheet at fair value. Unrealized gains and losses on these investments are included as a separate component of accumulated other comprehensive income, net of tax.

3. Investments (in part)

The following tables summarize the Company's investments (in millions):

| | Amortized Cost | Gross Unrealized Gains | Gross Unrealized Losses | Fair Value |
|---|-----------------|------------------------|-------------------------|------------------|
| July 31, 2004 | | | | |
| Fixed Income Securities: | | | | |
| U.S. government notes and bonds | \$ 4,408 | \$ 9 | \$(20) | \$ 4,397 |
| Corporate notes, bonds, and asset-backed securities | 9,033 | 14 | 42 | 9,005 |
| Municipal notes and bonds | 210 | - | 13 | 197 |
| Total Fixed Income Securities | 4,651 | 23 | 165 | 4,509 |
| Publicly traded equity securities | 155 | 387 | 18 | 524 |
| Total | <u>\$ 4,806</u> | <u>\$410</u> | <u>\$(183)</u> | <u>\$ 5,033</u> |
| Reported as: | | | | |
| Short-term investments | | | | \$ 4,947 |
| Long-term investments | | | | 10,558 |
| Total | | | | <u>\$ 15,505</u> |

ADDITIONAL CONSIDERATION

Be sure to note that the effect on shareholders' equity is precisely the same as if the holding gains and losses had been included in earnings. The difference is that if included in earnings, the impact would be an increase or decrease in retained earnings rather than a separate component of shareholders' equity. You might think of it this way: Accumulated other comprehensive income accumulates other comprehensive income just as retained earnings accumulates additional net income (that hasn't been distributed as dividends).

Selling Securities Previously Adjusted to Fair Value. To see how to record the sale of securities that were previously adjusted to fair value, let's assume the Midington shares are sold for \$36 per share, resulting in an actual value of the securities of \$36 million since the investment was acquired for \$30 million. Five million dollars of this increase occurred in 2006 because of an increase in earnings because it wasn't yet realized by selling the securities. Now, the entire \$6 million gain is recognized in 2007 when it is actually realized.

| | |
|--|------------------|
| June 1, 2007 | \$6 million gain |
| Cash | 10 |
| Premium on Midington shares | 36 |
| Securities available-for-sale—difference | 6 |

Gains and losses from securities available-for-sale are recognized in earnings when they are realized by selling the securities.

Purchase of Investments. Now suppose American buys common stock of Eads Industries for \$45 million in October.

| | |
|---------------------------|------------------|
| October 7, 2007 | \$5 million gain |
| Investment in Eads shares | 45 |
| Cash | 45 |

We initially record all assets that we purchase at cost.

Subsequent Adjustments to Fair Value. At December 31, 2007, the market prices of securities are: Eads Industries shares, \$16 million, and Eads Industries shares, \$46 million.

| | | | |
|-------------------------------|------|------------|------------------------|
| December 31, 2007 | | | |
| (millions) | | | |
| Securities Available-for-Sale | Cost | Fair Value | Unrealized Gain (Loss) |
| Midington Corporation shares | \$20 | \$16 | \$(4) |
| Eads Industries shares | 45 | 51 | \$6 |
| Total | \$65 | \$67 | \$2 |

We need to report a \$2 million accumulated net unrealized gain. A balance with a \$4 debit will be good so we need a change of balance to \$2 million.

Moving from a positive \$4 in 2006, to a negative \$3 requires a reduction of \$7.

| | | |
|---|---|---|
| | + | — |
| 3 | 0 | 4 |
| 7 | | |

To record the holding gains and losses \$(4) debit to \$2 debit, fair value adjustment \$(4) debit to \$2 credit.

The fair value adjustment to the securities available-for-sale account also needs to be changed \$7 million to a credit balance of \$2 million.

In the 1947 transactions and adjusting entry, here are the current balances:

| Assets | | | |
|-------------------------------|-----|-----------------------|--------------|
| Securities Available-for-Sale | | Fair Value Adjustment | |
| Balance | \$6 | 2006 Balance | 4 |
| 2007 Sale | 40 | | |
| Add | 49 | | |
| Balance | 65 | 3 | 2007 Balance |
| Securities available for sale | | \$65 | |
| Less Fair value adjustment | | 3 | |
| | | \$62 | |

We report the \$2 million net gain in the net assets section of the balance sheet as of 2007.

After the fair value adjustment, the securities available-for-sale are \$62 million.

The report of the investment under available-for-sale is the same as the report of the investment under available-for-sale. The only difference is that the investment is reported under available-for-sale.

The investment is reported as a debt investment related to Midington shares. The investment is reported as a debt investment related to Midington shares. The investment is reported as a debt investment related to Midington shares.

Components one and two are relatively intuitive. Each represents a change in the fair value of American Capital's investment portfolio while holding securities available-for-sale (e.g., 2007).

The third component, however, needs further examination. We saw earlier that a \$5 million unrealized holding gain was reported in 2006 on the Millington shares because the shares had risen in value from a \$30 million cost to \$35 million at the end of 2006. The shares increased in value another \$1 million and were sold during 2007 for \$36 million, and \$5 million was recorded for the entire \$6 million increase in value because that was the amount realized through the sale of the shares. Recall, though, that comprehensive income includes net income and other comprehensive income. Net income in 2007 includes the \$6 million realized gain. However, \$5 million of that gain already has been reported in comprehensive income—as an unrealized holding gain in 2006. Isn't that double-counting? Yes it is, but we can't double-count the realized gain in net income. The \$5 million portfolio—the net realized gain that already has been reported. That's what the third component does, it subtracts this year's comprehensive income by the amount that was reported last year to keep it from being reported twice.

This adjustment takes no additional action. It's automatically accomplished each period when we compare the cost of the portfolio with its fair value. Remember, we compared the \$30 million cost with the \$62 million fair value to see that balances in the fair value adjustment and the net unrealized gains and losses accounts needed to be a negative \$3 million (recall that with the positive \$4 million existing balances indicated that we needed the \$7 million reduction. As shown above, that \$7 million already includes the \$5 million adjustment.

In *Illustration 12-2C*, we simply reported the total \$7 million negative *other comprehensive income*. It's common practice, though, to separately report the current period's net unrealized holding gains or losses and the adjustment for the reclassification of previously reported holding gains and losses.³ Doing so would cause our statement of comprehensive income to appear as follows:

| Other Comprehensive Income | |
|---|-------|
| Unrealized holding gains/losses on investments | \$6.2 |
| Reclassification adjustment of 2006 unrealized gain included in 2007 net income | 5 |
| Net unrealized holding gains/losses | \$1.2 |

This entry is called a *reclassification adjustment* because it reclassifies an amount reported in the income statement when it occurs. We will apply this entry to a security that a portion of the 2007 net realized gain was reported previously as an unrealized gain.

Impairment of Investments. Occasionally, the fair value of a security will decline for a reason that's judged to be "other than temporary." For instance, a bankruptcy filing can indicate a degradation to the creditworthiness of the issuer of bonds. An investor buying the bonds as an investment might conclude that a drop in the market price of the bonds is an other-than-temporary impairment. In this case, when the investment is written down to fair value, the account of the write-down should be created as though it were a loss (meaning it's included in income for the period). After the other-than-temporary impairment, the normal treatment of unrealized gains or losses is resumed; that is, changes in value are reported as a separate component of shareholders' equity. In the 2002 fourth quarter, *Trans Instruments* recorded a \$6.4 million write-down of investment securities in a decline in market value the company considered other than temporary.

\$5 million of the realized gain was reported again.

| | |
|--------------------|----|
| 2006 gain | \$ |
| 2007 realized gain | 0 |

| | |
|--------------------|----|
| 2006 gain | \$ |
| 2007 realized gain | 0 |

| | |
|--------------------|----|
| 2006 gain | \$ |
| 2007 realized gain | 0 |

2007 realized gain

"other than temporary" impairment is security hasn't been sold.

³ This entry is called a *reclassification adjustment* because it reclassifies an amount reported in the income statement when it occurs. We will apply this entry to a security that a portion of the 2007 net realized gain was reported previously as an unrealized gain.

Trading Securities

■ 12.3

Trading securities are actively managed in a trading account for the purpose of profiting from short-term price changes.

Some companies—primarily financial institutions—actively and frequently buy and sell securities expecting to earn profits on short-term differences in price. Investments in equity securities acquired principally for the purpose of selling them in the near term are classified as trading securities. The holding period for trading securities generally is less than a year, although it is not uncommon for a security to be held for more than a year.

The approach used to account for trading securities differs from how we account for securities available-for-sale and the major gain or loss on trading securities is realized. Keep in mind as we study this chapter that many companies use the same accounting for trading securities in the manner and for the purpose needed to be categorized as trading securities.

ADDITIONAL CONSIDERATION

Bankers' Objections

Perhaps the strongest objections to mark-to-market accounting when SFAS No. 32 was being proposed came from the banking and insurance industries. Their concern was the volatile impact on earnings from reporting unrealized gains and losses on assets trading securities, while not being permitted to mark liabilities to market as well. Their objections were (and are) not merely self-interested arguments. There is an ongoing academic debate concerning this apparent inconsistency.

Holding gains and losses for trading securities are included in earnings.

When securities are actively managed as trading securities are, with the expressed intent of profiting from short-term market price changes, the gains and losses that result from selling securities during the period are appropriate measures of success or failure. We expect that market prices will change, even if they haven't yet been realized through the sale of the securities. To see how, let's modify our Illustration 12-2 to assume the investment securities we considered earlier in Illustration 12-2 are trading securities, rather than securities available-for-sale. Consider Illustration 12-3.

ILLUSTRATION 12-3 Investments in Trading Securities

American Capital buys and sells both debt and equity securities of other companies as investments. The following transactions during 2012 pertain to the investment portfolio. Assume American Capital frequently and actively buys and sells both debt and equity securities, in certain to profit on short-term differences in price. The company's fiscal year ends on December 31.

| | |
|-------------|---|
| November 8 | Purchased ABM Corporation 50% notes for \$20 million (face amount). |
| November 30 | Recorded cash interest of \$1 million on the investment in ABM Corporation notes calculated as $\$20 \text{ million} \times 10\% \times \frac{1}{2} \text{ year}$. |
| December 1 | Sold the ABM Corporation notes for \$22 million. |
| December 2 | Acquired two different investment securities: |
| | Millington Industries shares \$30 million |
| | Barren Corporation shares 20 million |
| December 31 | Transferred trading securities investments to: |
| | Millington Industries shares \$35 million |
| | Barren Corporation shares 19 million |

Purchase of Investment. The journal entry to record the purchase of investment securities is recorded in precisely the same way for trading securities as for investments classified as available-for-sale:

| | | |
|--------------------------|----------------|----|
| November 10 | \$ in millions | |
| Investment in ABM shares | 20 | |
| Cash | | 20 |

All investment securities are initially recorded at cost.

Investment Revenue. The journal entry to record the cash interest is

| | | |
|---------------------------------------|----------------|---|
| November 30 | \$ in millions | |
| Interest Revenue (10% × \$20 million) | | 2 |
| Investment Revenue | | |

Dividend and interest income is included in earnings.

Sale of Investments. The journal entry to record the sale of the ABM Corporation stock is

| | | |
|-----------------------------|----------------|----|
| December 1 | \$ in millions | |
| Cash | 23 | |
| Investment in ABM notes | | 20 |
| Gain on sale of investments | | 3 |

Realized gains are included in earnings.

Purchase of Investments. The journal entry to record the purchase is:

| | | |
|------------------------------|----------------|----|
| December 21 | \$ in millions | |
| Investment in Milner shares | 30 | |
| Investment in Barlett shares | 20 | |
| Cash | | 50 |

All investments are initially recorded at cost.

Adjusting Investments to Fair Value. Although it is acceptable to record the changes in value indirectly by debiting a valuation account as we did in the previous section for securities available-for-sale, companies that invest in trading securities typically do not include the investments turn over quickly. Instead they record fair value adjustments directly in the investment accounts as demonstrated in the following journal entries:

| | | |
|---|----------------|---|
| December 31 | \$ in millions | |
| Investment in Milner shares | 5 | |
| Unrealized holding gains on investments (\$5 - \$0) | | 5 |
| Unrealized holding gains on investments (\$19 - \$20) | | |
| Investment in Barlett shares | | 1 |

All investment securities except those held in mutual funds are adjusted to their fair value on each reporting date.

The key difference in reporting trading securities as opposed to securities available-for-sale is that we report unrealized holding gains or losses as part of current earnings as opposed to OCI.

Financial Statement Presentation. For trading securities, unrealized holding gains or losses are included in earnings of the period the changes in value occur. In the balance sheet, the investments in our illustration are reported at the *fair value* of the investment securities, \$35 + \$19 = \$54, whereas the *unrealized* gain of \$5 + \$1 = \$6 million is reported in the income statement. The 2006 financial statements will include the data shown in Illustration 12-3A.

Illustration 12-3A**Reporting Trading Securities**

For each reporting date, the investor should determine whether the securities are trading securities or available-for-sale securities. If the securities are trading securities, the investor should report them as trading securities.

Trading securities should be reported at fair value.

Unrealized gains and losses on trading securities should be reported in the income statement.

| Income Statement | | Amount (in millions) |
|--|--|----------------------|
| Other Income (Expense) | | |
| Investment income | | \$ 1 |
| Gain on sale of investments | | 3 |
| Net unrealized holding gain or investment income | | 4 |
| Other Comprehensive Income | | |
| None | | |
| Balance Sheet | | |
| Assets | | |
| Trading securities at fair value (cost \$50) | | \$ 54 |
| Statement of Cash Flows | | |
| Operating Activities | | |
| Investment revenue | | \$ 1 |
| Purchase of trading securities* | | 20 |
| Sale of trading securities | | 23 |

*Trading securities are sold only when they are sold. The investor should report the sale of trading securities as a sale of investments. The investor should not report the sale of trading securities as a sale of investments.

A transfer of a security from one reporting category to another reporting category is a transfer. A transfer of a security from one reporting category to another reporting category is a transfer.

Transfers between Reporting Categories

At acquisition, an investor assigns debt and equity securities to one of the three reporting classifications—held-to-maturity, available-for-sale, or trading. At each reporting date, the appropriateness of the classification is reassessed. For instance, if the investor no longer has the ability to hold certain securities to maturity and will now hold them for resale, those securities would be reclassified. When a security is reclassified between two reporting categories, the security is transferred at its fair value on the date of transfer. Any gain or loss on the transfer should be accounted for in a manner consistent with the classification into which the security is being transferred. A summary is provided in Graphic 12-5.

GRAPHIC 12-5**Transfer between Investment Categories**

| Transfer from: | To: | Unrealized Gain or Loss from Transfer at Fair Market Value |
|-------------------------|-------------------------|---|
| Either of the other two | Trading | Include in current earnings |
| Trading | Either of the other two | There is none already recognized in earnings |
| Held-to-maturity | Available-for-sale | Report as a separate component of shareholders' equity in Other Comprehensive Income |
| Available-for-sale | Held-to-maturity | Don't write off any existing unrealized holding gain or loss but amortize it to earnings over the remaining life of the security. The value amount becomes the security's amortized cost basis. |

Reclassifications are rare events, so when they occur, disclosure notes should identify the circumstances that resulted in the transfers. Other footnote disclosures are described in later sections.

CONCEPT REVIEW EXERCISE

Diversified Services, Inc. offers a variety of business services, including financial services through its extensive divisions. Diversified entered into the following investment activities during the last month of 2006 and the first week of 2007. Diversified's fiscal year ends on December 31. The only securities held by Diversified at December 31 were 12 million common shares of Shelby Laminations, Inc. purchased in November for \$48 million and classified as available-for-sale.

VARIOUS INVESTMENT SECURITIES

2006

- Dec. 1 Purchased \$30 million of 12% bonds of Vince-Gill Amusement Corporation and \$24 million of 10% bonds of Eastern Waste Disposal Corporation, both at face value and both to be held until they mature. Interest on each bond issue is payable semiannually on November 30 and May 31.
- 9 Sold one-half of the Shelby Laminations common shares for \$25 million.
- 29 Received cash dividends of \$1.5 million from the Shelby Laminations common shares.
- 30 Purchased U.S. Treasury bonds for \$5.5 million as trading securities hoping to earn profits on short-term differences in prices.
- 31 Recorded the necessary adjusting entry(ies) relating to the investments.

The year-end market price of the Shelby Laminations common stock was \$4.25 per share. The fair values of the bond investments were \$32 million for Vince-Gill Amusement Corporation and \$20 million for Eastern Waste Disposal Corporation. A sharp rise in short-term interest rates on the last day of the year caused the fair value of the Treasury bonds to fall to \$4 million.

2007

- Jan. 2 Sold the remaining Shelby Laminations common shares for \$26 million.

Required

Prepare the appropriate journal entry for each transaction or event and show the amounts that would be reported in the company's 2006 income statement relative to these investments.

2006

- Dec. 1 Purchased \$30 million of 12% bonds of Vince-Gill Amusement Corporation and \$24 million of 10% bonds of Eastern Waste Disposal Corporation, both at face value and both to be held until they mature. Interest on each bond issue is payable semiannually on November 30 and May 31.

| | | |
|--|------------------|----|
| Investment in Vince-Gill Amusement bonds | (\$ in millions) | |
| Investment in Eastern Waste Disposal bonds | 24 | |
| Cash | | 54 |

- Dec. 9 Sold one-half of the Shelby Laminations common shares for \$25 million.

| | | |
|---|------------------|---|
| Cash—selling price | (\$ in millions) | |
| Investment in Shelby Laminations common shares (\$48 × 1/2) | 24 | |
| Gain on sale of investments (difference) | | 1 |

- Dec. 29 Received cash dividends of \$1.5 million from the Shelby Laminations common shares.

| | | |
|--------------------|------------------|-----|
| Cash | (\$ in millions) | |
| Investment revenue | 1.5 | |
| | | 1.5 |

SOLUTION

- Dec. 30 Purchased U.S. Treasury bonds for \$5.8 million as trading securities, hoping to earn profits on short-term differences in prices.

| | | |
|------------------------------------|-----|------------------|
| | | (\$ in millions) |
| Investments in U.S. Treasury bonds | 5.8 | |
| Cash | | 5.8 |

- Dec. 31 Recorded the necessary adjusting entry(s) relating to the investments.

| | | |
|---|---------------------------------|------------------|
| Accrued Interest (one month) | | (\$ in millions) |
| Investment revenue receivable—Shelby | Accrual—Amortization | 0.3 |
| Investment revenue receivable—Shelby | Accrual—Amortization | 0.3 |
| Investment revenue receivable—Shelby | Accrual—Amortization | 0.3 |
| Investment revenue receivable—Shelby | Accrual—Amortization | 0.3 |
| Fair Value Adjustments | | |
| Unrealized holding loss on investments—Trading securities | 5.8 million, less \$0.3 million | 5.5 |
| Fair value adjustment | | 5.5 |
| Net unrealized holding gain or loss on securities available for sale (12 million shares) × \$4.25 | | \$51.0 |
| Unrealized holding gain on investments—Available for sale | | 51.0 |

Note: Securities held to maturity are not adjusted to fair value.

| | |
|---|------------------|
| Reported in the 2006 Income Statement: | (\$ in millions) |
| Investment revenue (\$0.3 + 0.3) | \$0.6 |
| Gain on sale of investments (Shelby) | 5.0 |
| Unrealized holding loss on investments (Trading securities) | (5.5) |

Note: The unrealized holding gain for the Shelby Corporation common shares is not included in income because it pertains to securities available-for-sale, rather than trading securities.

2007

- Jan. 7 Sold the remaining Shelby Corporation common shares for \$26 million.

| | | |
|---|----|------------------|
| | | (\$ in millions) |
| Cash (selling price) | 26 | |
| Investment—Shelby Corporation common shares (cost = \$48) | | 48 |
| Gain on sale of investments (difference) | | 22 |

Financial Statement Presentation and Disclosure

Trading securities are current assets with short-term liquidity and available for sale. They are classified as current assets depending on when they are expected to mature or be sold. However, it is not necessary that a company report individual amounts in the three categories of investments: held-to-maturity, available-for-sale, or trading. For the balance sheet as long as that information is presented in the financial notes.

On the statement of cash flows, inflows and outflows of cash from buying and selling trading securities typically are considered operating activities because for companies that routinely transact in trading securities (financial institutions), trading in those securities is an appropriate part of the company's normal operations. But because held-to-maturity and available-for-sale securities are not purchased and held principally to earn

¹Statement of Financial Accounting Standards No. 115, *Accounting for Certain Investments in Debt and Equity Securities*, issued June 1993, 9905, par. 16.

near term, cash flows from the purchase, sale, and maturity of these securities are considered investing activities.

Investors should disclose the following in the disclosure notes for each year presented:

- Aggregate fair value.
- Gains realized and unrecognized holding gains.
- Gains realized and unrealized holding losses.
- Change in net unrealized holding gains and losses, amortized cost bases by major security type.

Information about maturities should be reported for debt securities by disclosing the fair value and cost (for all years) for maturity groupings: (a) within 1 year, (b) after 1 year through 5 years, (c) after 5 years through 10 years, and (d) after 10 years. A disclosure note from Intel's 2006 annual report (Graphic 12-6) provides an example.

The net classified debt securities at June 30, 2006, would be as follows:

| Maturity | Cost Basis | Estimated Fair Value |
|--------------------------------------|------------|----------------------|
| Due within one year | \$27,485 | \$31,388 |
| Between one year through five years | 11,777 | 14,064 |
| Between five years through ten years | 36 | 5,165 |
| Between ten years and | 1,894 | 4,956 |
| Total | \$40,192 | \$55,573 |

GRAPHIC 12-6

Disclosures of Investment Securities—Microsoft Corporation

THE EQUITY METHOD

When a company invests in the equity securities (primarily common stock) of another company, the investor can benefit either (a) *directly* through dividends and/or market price appreciation or (b) *indirectly* through the creation of desirable operating relationships with the investee. The way we report a company's investment in the stock of another company depends on the nature of the relationship between the investor and the investee.

For reporting purposes, we classify the investment relationship in one of three ways, and we report the investment differently depending on the classification, as shown in Graphic 12-7.

| Classification | Reporting Method |
|---|--|
| Investor does not significantly influence the investee—less than 20% equity ownership | Variable reporting category (see Part A of this chapter) |
| Investor does significantly influence the investee—20% to 50% equity ownership | Equity method |
| Investor controls the investee—more than 50% equity ownership | Consolidation |

GRAPHIC 12-7

Reporting Classifications for Investment Relationships

We focused on the first classification in Part A of this chapter. Now, let's turn our attention to the second classification—the equity method. A detailed discussion of the third classification—consolidated financial statements—is beyond the scope of this book. This

The equity method is used when an investor does not control but does significantly influence the investee.

exercise regardless of how other investors vote their shares. FASB Interpretation No. 35 provides that, and other examples of indications that an investor may be unable to exercise significant influence:

- The investee challenges the investor's ability to exercise significant influence through litigation or compliance with regulations.
- The investor surrenders significant shareholder rights in a signed agreement.
- The investor is unable to acquire sufficient influence or influence at the investee to apply the equity method.
- The investor elects and does not have representation on the board of directors of the investee.

In such cases, the equity method would be inappropriate.

Even so, it is also possible for a company that owns less than 20% of the voting shares to be able to exercise significant influence over the investee. Ability to exercise significant influence with less than 20% ownership might be indicated, for example, by having an officer of the investor corporation on the board of directors of the investee corporation or by having, say, 7.8% of the voting shares, while no other investor owns more than 1%. In such cases, the equity method would be appropriate. Amazon.com provided the following example in a recent disclosure note:

Notes 6—Investments

At December 31, 2006, the Company's equity method investments and the Company's approximate ownership interest in each investee, based on outstanding shares, were as follows:

| Company | Percentage Ownership |
|------------------|----------------------|
| Basis Technology | 1% |
| Drugstore.com | 2% |
| Eziba.com | 2% |
| Greenlight.com | 1% |
| Kozma.com | 1% |

Although the Company's ownership percentage for Basis Technology, Greenlight.com and Kozma.com is below 20%, the Company's representation on the investee's Board of Directors and the impact of commercial arrangements result in the Company having significant influence over the operations of each investee.

Single Entry Concept

When the consolidation concept and the equity method views the investor and investee collectively as a special type of single entity (as if the two companies were "one company"). However, using the equity method, the investor must still have separate financial statement items if the investor is on a line-by-line basis as in consolidation. Instead, the investor reports its equity interest in the investee as a single investment account.

Under the equity method, the investor recognizes investment income equal to its percentage share (based on stock ownership) of the net income earned by the investee rather than a portion of that net income received as cash dividends. The rationale for this approach is a presumption of the equity method that the fortunes of the investor and investee are sufficiently intertwined that as the investee prospers, the investor prospers proportionately. Conversely, as the investee earns additional net assets, the investor's share of those net assets increases.

Initially, the investment is recorded at cost. The carrying amount of this investment subsequently is:

• LOS

The investor's

investment account is adjusted for the investor's share of the investee's net income or loss and for dividends received from the investee.

The investment account

is adjusted for the investor's share of the investee's net income or loss and for dividends received from the investee.

1. See the following FASB Interpretations: Interpretation No. 35, *Investments in Securities*; Interpretation No. 39, *Applying the Equity Method*; and Interpretation No. 40, *Applying the Equity Method*.

- Increased by the investor's percentage share of the investee's net income (or decreased by its share of a loss).
- Decreased by dividends paid.

Let's look at the example in Illustration 12-4.

Illustration 12-4 Equity Method

On January 2, 2006, American Capital Corporation purchased 25% of the outstanding common shares of Farris Management Corporation. The following information is available regarding Farris Management Corporation during 2006:

| | (\$ in millions) |
|---|------------------|
| Net assets at acquisition: ^a | |
| Fair value | \$600 |
| Book value | 480 |
| 2006 net income | 100 |
| 2006 dividends declared and paid | 24 |

When a company invests in shares in another corporation, the asset initially is recorded at cost in accordance with the acquisition principle. The recorded amount includes any brokerage fees or commissions paid to acquire the shares.

| | |
|---|------------------|
| Initial Acquisition | (\$ in millions) |
| Investment in equity securities (cost of shares) ^b | 200 |
| Cash | 200 |

Following the acquisition, the investment account is adjusted for the investor's percentage share of net income reported by the investee.^c

| | |
|---|----|
| Investee Net Income | |
| Investment in equity securities | 25 |
| Investment share of 25% share of \$100 million net income | 25 |

Adjusting the investment account reflects the equity method's presumption that the investor's additional net assets (the cost of its equity interest) include net assets in the investee. The investor's share of net income is being added to the investment account because the investor's share of the investee's net income is actually distributed as dividends. In fact, when the investor actually receives dividends, the investment account is reduced accordingly.

| | |
|--|---|
| Dividends | |
| Cost of 25% share of \$24 million dividends paid | 6 |
| Investment in equity securities | 6 |

Because investor revenue is recorded as it is earned by the investee, it would be appropriate to charge the revenue against the things that it flows as dividends. Instead, we view the dividend distribution as a withdrawal of the investee's net assets and, accordingly, the investor's equity interest in those net assets declines proportionately.

^aThe net assets number is calculated as shareholders' equity plus net debt. Since net debt has never been subtracted from equity, it is the same as shareholders' equity.

^bThe assets are purchased at \$800 million. The cost of the investment is determined by the number of shares purchased, multiplied by the price paid for each share. The cost of the investment is \$200 million (25% of \$800 million). The cost of the investment is recorded as an investment in equity securities. The cost of the investment is also recorded as cash paid.

Further Adjustments

- **LO4** When the investor's expenditure to acquire an investment exceeds the book value of the underlying net assets acquired, additional adjustments to both the investment account and investment revenue might be needed. The purpose is to approximate the effect of consolidation, without actually consolidating financial statements. More specifically, the investment account and investment revenue are adjusted for differences between a

one reported by the investee and what that amount would have been if consolidation procedures had been followed. Let's look closer at what that means.

As mentioned earlier, consolidated financial statements report (a) the acquired company's assets at their fair market values rather than their book values and (b) goodwill for the excess the acquisition price over the fair value of the identifiable net assets acquired.

The first of these two consequences of the consolidation process usually has an effect on taxes, and it's the income effect that we're interested in when applying the equity method. Increasing asset balances to their fair values usually will result in higher expenses. For instance, if buildings, equipment, or other depreciable assets are written up to higher values, depreciation expense will be higher during their remaining useful lives. Likewise, if the ending amount of inventory is increased, cost of goods sold will be higher when the inventory is sold. However, if it's land that's increased, there is no income effect because we don't depreciate land.

On the other hand, recording goodwill will not result in higher expenses. Goodwill is an intangible asset, but one whose cost usually is not charged to earnings.¹⁴ As a consequence, even if increasing asset balances to fair value but not of recording goodwill expenses will reduce income. It is this negative effect of income that the equity method seeks to avoid.

Recall that our illustration provides the following information regarding Embassy Mexico Corporation's net assets at the date American Capital Corporation pays \$200 million in interest on the company:

| Net Assets at Acquisition: | \$ in millions |
|----------------------------|----------------|
| Fair value | \$600 |
| Book value | \$480 |

We assume that, as two-thirds of the difference between the book value of the net assets and their fair market value is attributable to depreciable assets having a fair market value in excess of their undepreciated cost and (b) the remaining third is attributable to land having a fair market value in excess of its cost. We can determine the nature of these differences that American Capital purchased with its \$200 million investment and, therefore, any additional expense to be expensed as shown in Graphic 12-8.

| | | (\$ in millions) | |
|-----------------------|----------------------|---------------------------|------|
| Investor's Net Assets | Net Assets Purchased | Difference Attributed to: | |
| | | + | |
| Cost | \$200 | Goodwill | \$50 |
| Fair value | \$600 | Undervaluation of | |
| | | depreciable assets (%) | \$20 |
| | | Land | \$30 |
| Book value | \$480 | | |

Graphic 12-8

Source of Differences between the Investment and the Book Value of Net Assets Acquired

Note in Graphic 12-8 that American Capital paid \$200 million for identifiable net assets worth \$150 million, and the \$50 million difference is attributable to goodwill. Similarly, identifiable net assets worth \$150 million have a book value of only \$120 million, and we assumed the \$30 million difference is attributable to undervalued depreciable assets (\$20 million) and (\$10 million).

¹⁴ In 2002, goodwill is not fully deductible for tax purposes. Only 70% of the goodwill is subsequently deductible in the event of the company's sale, liquidation, or expiration. *CPA's Manual* (<http://www.cpa-manual.com>) Chapter 10, Section 10.11.

Amortization of Additional Depreciation. Remember, we assumed that one-third of the difference between the book value of the net assets and their fair market value was attributable to depreciable assets having a market value in excess of their undepreciated cost, or \$90 ÷ 30 million = 3 million. Let's also assume that these depreciable assets have an average remaining useful life of 10 years, and are being depreciated by the straight-line method. Investment revenue and the investment both would be reduced by the negative income effect of the "extra depreciation" the higher fair value would cause.

| Additional Depreciation | | \$ in millions |
|--|--|----------------|
| Investment revenue (30 million ÷ 10 years) | | 3 |
| Investment in equity shares | | 3 |

We would need to record this adjustment in each of the next nine years as well, since the average remaining useful life is 10 years.¹⁷

No Amortization of Land. On the contrary, the remaining \$10 million difference between the book value of the net assets and their fair market value has no effect on earnings. Unlike buildings and equipment, land is not an asset we depreciate. As a result, writing up the land from book value to fair value has would occur in consolidation, would not cause higher expenses, so as we merge consolidation here in the equity method, we have no need to adjust investment revenue or the investment in equity securities.

No Amortization of Goodwill. Recall from Chapter 11 that goodwill, unlike most other intangible assets, should not be amortized. In that sense goodwill resembles land. Expenses are unaffected by whether goodwill is recorded or not. So acquiring goodwill (\$9 million in our example) will not cause higher expenses, so we have no need to adjust investment revenue or the investment in equity securities.

Reporting the Investment

The market value of the investment shares at the end of the reporting period is not reported when using the equity method. The investment account is reported at its original cost, increased by the investor's share of the investee's net income (adjusted for additional expense-like depreciation), and decreased by the portion of those earnings actually received as dividends. In other words, the investment account represents the investor's share of an investee's net assets initially acquired, adjusted for the investor's share of the subsequent increase in the investee's net assets (net assets earned and not yet distributed as dividends).

The equity method investment account is increased by the investor's share of the investee's net income (adjusted for additional expense-like depreciation).

| Investment in Equity Securities | | \$ in millions | |
|---------------------------------|-----|----------------|--------------|
| Cost | 200 | | |
| Share of income | 25 | 6 | Dividends |
| | | 2 | Depreciation |
| Balance | 217 | | |

When the Investee Reports a Net Loss. Our illustration assumed the investee earned net income. If the investee reports a net loss instead, the investment account would be decreased by the investor's share of the investee's net loss (adjusted for additional expenses).

¹⁷For example, an inflation rate return rate value of 10% would be attributable to undepreciated investment rather than interest on depreciable assets. It would adjust the interest revenue to 3% to reflect an equity investment in an equity. Therefore, the 3% adjustment to the investment account would be 3 million (30 million × 10%) over buildings and equipment that last several years. So if interest returned by 120 million, cost of goods sold will be 820 million higher the first year.

When the Investment Is Acquired in Mid-Year. Obviously, we've simplified the problem by assuming the investment was acquired at the beginning of 2006, resulting in full-year income, dividends, and amortization. In the more likely event that an investment is acquired sometime after the beginning of the year, the application of the equity method is modified to include the appropriate fraction of each of these amounts. For example, if the investment in our illustration had been acquired on October 1 rather than January 1, we would simply record income, dividends, and amortization for three months, or $\frac{3}{12}$ of the year as would result in the following adjustments to the investment account:

| Investment in Equity Securities
(\$ in millions) | |
|---|---|
| Cost | 200.00 |
| Share of income ($\frac{3}{12} \times \$25$) | 6.25 |
| | $\frac{3}{12} \times \$6$ Dividends* |
| | $\frac{3}{12} \times \$20$ Depreciation |
| Balance | 204.25 |

The investor assumes quarterly depreciation and that the investment was acquired on October 1. The investor also assumes a 12-month period for the amortization of the investment. The investor also assumes that the investment was acquired on October 1, and that the investor has owned the investment for the entire year.

Change in the investment account is not the same as the change in the investment account. The change in the investment account is the change in the investment account. The change in the investment account is the change in the investment account.

ADDITIONAL CONSIDERATION

It's possible that the investor's proportionate share of investor losses could exceed the carrying amount of the investment. If this happens, the investor should discontinue applying the equity method until the investor's share of subsequent investor earnings has totaled losses not recognized during the time the equity method was discontinued. This avoids reducing the investment account below zero.

Amazon.com reported its investments in affiliated companies for which it exercised significant influence using the equity method as shown in Graphic 12-9.

| Investment in | 2003 | 2002 |
|------------------|-------------|-------------|
| December 31 | | |
| Cost | \$1,200,000 | \$1,200,000 |
| Goodwill | 124,000 | 124,000 |
| Amortization | 69,700 | 70,500 |
| Change in equity | 1,066,300 | 1,029,500 |
| Investment in | | |
| December 31 | | |
| Cost | \$1,200,000 | \$1,200,000 |
| Goodwill | 124,000 | 124,000 |
| Amortization | 69,700 | 70,500 |
| Change in equity | 1,066,300 | 1,029,500 |
| Investment in | | |
| December 31 | | |
| Cost | \$1,200,000 | \$1,200,000 |
| Goodwill | 124,000 | 124,000 |
| Amortization | 69,700 | 70,500 |
| Change in equity | 1,066,300 | 1,029,500 |

GRAPHIC 12-9
Equity Method—
Amazon.com

What If Conditions Change?

Change from the Equity Method to Another Method. When the investor's level of influence changes, it may be necessary to change from the equity method to another method. This could happen, for instance, if a sale of shares causes the investor's ownership to fall from, say, 25% to 15%, resulting in the equity method no longer being appropriate. Another example is provided by Sprint, which in February 2001 agreed to end its exclusive alliance with EarthLink and relinquished its seat on EarthLink's board of directors.

*The investor assumes quarterly depreciation and that the investment was acquired on October 1. The investor also assumes a 12-month period for the amortization of the investment. The investor also assumes that the investment was acquired on October 1, and that the investor has owned the investment for the entire year.

As a result, Sprint discontinued using the equity method for its investment in Banktel. When this situation happens, *no adjustment* is made to the remaining carrying amount of the investment. Instead, the equity method is simply discontinued and the *new method* applied from then on. The balance in the investment account when the equity method is discontinued would serve as the new cost basis for writing the investment up or down to market value in the actual set of financial statements.

A Change from Another Method to the Equity Method On the other hand, when a change to the equity method is appropriate, because the investor's ownership interest rose from 35% to 25%, the investment account should be retroactively adjusted to the balance that would have existed if the equity method always had been used. As income also would have been different, retained earnings would be adjusted as well. For example, assume it's determined that an investor's share of investee net income, reduced by dividends, was \$4 million during a period when the equity method was not used, but additional purchases of shares cause the equity method to be appropriate now. The following journal entry would record the change:

If the investment account and the carrying amount would be increased by the investor's share of the undistributed earnings in years prior to changing to the equity method:

| | \$ in millions |
|--|----------------|
| Investment in equity securities | 4 |
| Retained earnings (investment's income on the equity method) | |

In addition to the adjustment of account balances, financial statements would be restated to the equity method for each year reported in the annual report for comparative purposes. Also, the income sheet for years prior to those shown in the comparative statements is reported on the statement of retained earnings as an adjustment to beginning retained earnings of the earliest year reported. A disclosure note also should describe the change. Reporting a counting change is described in more detail in Chapter 20.

ADDITIONAL CONSIDERATION

Effect on Deferred Income Taxes

Investment revenue is recorded by the equity method when income is earned by the investee, but that revenue is not taxed until it's actually received as cash dividends. This creates a temporary difference between book income and taxable income. You will learn in Chapter 16 that the investor must report a deferred tax liability on the income statement. That liability ultimately will be paid when the income eventually is received as dividends.

IF AN EQUITY METHOD INVESTMENT IS SOLD

When an investment being reported by the equity method is sold, a gain or loss is recognized if the selling price is more or less than the carrying amount (book value) of the investment. For example, let's continue our illustration and assume American Capital Corporation sells its investment in Embassy Message Corporation at the end of 2006 for \$234 million. A journal entry would record a gain as follows:

When an equity method investment is sold, a gain or loss is recognized on the difference between its carrying amount and selling price.

| | \$ in millions |
|---|----------------|
| Cash (proceeds from sale) | 234 |
| Investment in equity securities (beginning) | 200 |
| Gain on sale of investment (difference) | 34 |

CONCEPT REVIEW EXERCISE

THE EQUITY METHOD

Delta Apparel, Inc. bought 40% of Clay Company Corp.'s outstanding common shares in January 2006 for \$340 million. The carrying amount of Clay Company's net assets (bankruptcy estate's equity) at the purchase date totaled \$900 million. Book values and fair values were:

—

value for all financial statement items except for inventory and buildings, for which fair values exceeded book values by \$25 million and \$225 million, respectively. All inventory on hand at the acquisition date was sold during 2006. The buildings have average remaining useful lives of 8 years. During 2006, Clay Crating reported net income of \$220 million and paid \$80 million cash dividends.

Required:

Prepare the appropriate journal entries during 2006 for the investment.

Determine the amounts relating to the investment that Delta Appraisal should report in the 2006 financial statements.

- As an investment in the balance sheet
- As investment revenue on the income statement
- Among investing activities in the statement of cash flows

Prepare the appropriate journal entries during 2006 for the investment.

SOLUTION

| Purchases | | (\$ in millions) | |
|--|--|------------------|-----|
| Investment in Clay Crating shares | | 540 | |
| or | | | 540 |
| Net income | | | |
| Investment in Clay Crating shares (40% × \$220 net income) | | 88 | |
| Investment revenue | | | 88 |
| Dividends | | | |
| or \$80 million | | 32 | |
| Investment in Clay Crating shares | | | 32 |
| Inventory | | | |
| or fair value higher over goods sold during 2006 | | | |
| Beginning inventory has been adjusted to fair value | | 0 | |
| Investment in Clay Crating shares | | | 0 |
| Buildings | | | |
| or fair value higher (\$225 million ÷ 8 years) | | 5 | |
| Investment in Clay Crating shares | | | 5 |

| | Investee
Net Assets | Net Assets
Purchased | Difference
Attributed to |
|---------------|------------------------|-------------------------|---|
| or | | \$540 | |
| fair value | \$1,150 × 40% = | \$460 | Goodwill: \$80 (difference) |
| or fair value | \$ 900 × 40% = | \$360 | Undervaluation
of inventory \$10 (\$25 × 40%) |
| | | | Undervaluation
of buildings \$90 (\$225 × 40%) |

Determine the amounts that Delta Appraisal should report in the 2006 financial

statements.

As an investment in the balance sheet

| Investment in Clay Crating Shares | | (\$ in millions) | |
|-----------------------------------|--|------------------|-----------|
| Cost | | 540 | |
| Share of income | | 88 | |
| | | 32 | Dividends |
| | | 10 | Inventory |
| | | 5 | Buildings |
| Balance | | 581 | |

- b. An investment revenue in the income statement

$$\begin{array}{rcl} \$88 \text{ million} & = & (\$10 + \$5) \text{ million} = \$73 \text{ million} \\ \text{(share of income)} & & \text{(adjustments)} \end{array}$$

- c. In the statement of cash flows:

- Among investing activities: \$540 million cash outflow
- Among operating activities: \$3.1 million cash inflow

DECISION MAKERS' PERSPECTIVE

The way we account for investments has considerable impact on both the valuation of corporate assets and income determination. Consequently, it is critical that both managers and external decision makers clearly understand those impacts and make decisions accordingly.

Management decisions concerning investments in other corporations are motivated by a variety of factors. Short-term investments in actively traded securities are common among banks, insurance companies, and other financial institutions. Manufacturing, merchandising, and nonfinancial service firms are more likely to make short-term investments in managing the use of temporarily idle cash. Substantial portfolios of long-term securities are produced among financial institutions who must keep large amounts of funds invested for long periods. Other firms, though, invest long term to derive any number of operating benefits, such as creating desirable relationships with suppliers or customers. The way we report a company's investment in the stock of another company depends on the nature of the relationship between the investor and the investee. That is, the choice is dictated by the situation; it's not a discretionary matter.

By and large, the way we account for an investment has little effect on a company's cash flows. On the other hand, profits companies report often are significantly impacted by the data used to account for investments. For example, suppose Investor Company owns 20% of Investee Company. Investee's net income is \$1 million. Suppose also that Investee distributes one-half its earnings as dividends. Thus, Investor receives 20% of \$1 million, or \$20,000. Also assume the fair value of Investor's investment in Investee's common stock increased by \$250,000 during the year. The investment revenue Investor includes on its income statement varies greatly depending on whether the investment is reported as a trading security, a security held for sale, or an investment accounted for by the equity method. The variation is shown in Graphic 12-10.

GRAPHIC 12-10
Variation in Earnings by
Method Used to
Account for
Investments

| | Accounting Method Used | | |
|--|------------------------|---------------------------|------------------|
| | Trading
Security | Security Held
for Sale | Equity
Method |
| Share of investee income ^a | \$200,000 | \$100,000 | \$200,000 |
| Increase in investee's fair value ^b | \$250,000 | 0 | 0 |
| Investor's investment income | \$250,000 | \$100,000 | \$200,000 |

^aAssumes the investee's net income is \$1 million.

^bReported as income for trading securities, nonpartner-owned investments, and equity-method investments.

Only reported on balance sheet and does not affect income.

Only reported on equity in securities available for sale.

Thus, despite the lack of real impact on cash flows, the accounting method affects net income—including calculations of earnings per share and rate of return ratios. When analyzing a company's profitability, investors and managers should be alert to the way different methods affect reported net income. Clearly, managerial intent plays a crucial role in the choice of securities. This discretion introduces the possibility of earnings management (manipulation of income) which has obvious implications for earnings quality. As an analyst, you would want to be particularly wary if the method changes from one year to the next.

panies have been known to adjust their ownership percentage, and therefore their method of accounting, suspiciously in concert with the prosperity of an investee.

Actually, the equity method was designed in part to prevent the manipulation of income that would be possible if investing corporations recognized income only when received as dividends, even when they have significant influence over investees. This would create the impression that an investing corporation's earnings are higher if dividends are paid, yet also diminishing income in an investment corporation. The equity method, in that respect, is a method of managing earnings that gives no discretion at all; even has its classification requirements created other potential abuses. ■

Financial Instruments and Investment Derivatives

A financial instrument is defined as

(a) . . .

Evidence of an ownership interest in an entity.¹⁹

A contract that (a) imposes on one entity an obligation to *deliver* cash (say accounts payable) or another financial instrument and (b) conveys to the second entity a right to receive cash (say accounts receivable) or another financial instrument; or

- A contract that (a) imposes on one entity an obligation to *exchange* financial instruments on potentially unfavorable terms (say the issuer of a stock option) and (b) conveys to a second entity a right to *exchange* other financial instruments on potentially favorable terms (say the holder of a stock option).²⁰

An entirely new class of financial instruments has emerged in recent years in response to the desire of firms to manage risks. In fact, these financial instruments would not exist on their own right, but have been created solely to hedge against risks created by other financial instruments, or by transactions that have yet to occur but are anticipated. Financial futures, interest rate swaps, forward contracts, and options have become commonplace.²¹ These financial instruments often are called derivatives because they “derive” their values or contracts from cash flows from some other security or index. For instance, an option to purchase an asset in the future at a preset price has a value that is dependent on, or derived from, the value of the underlying asset. When representing financial instruments as components of the operating capital structure has left the accounting profession scrambling to keep pace.

For example, the established accounting standards for financial instruments has been accelerated by headlines in the financial press reporting that the dollar bought more than an equal weight of the German mark. Procter & Gamble, a major U.S. company of consumer products, and Johnson & Johnson, to mention a few, the headlines have tended to focus attention on the misuse of these financial instruments rather than their legitimate use in

| Financial Instruments | |
|---------------------------------|--------------------------------|
| 1. Interest rate swaps | 2. Forward contracts |
| 3. Options | 4. Financial futures |
| 5. Derivatives | 6. Exchange-traded derivatives |
| 7. Over-the-counter derivatives | 8. Structured derivatives |

PERSPECTIVE: International Financial Reporting Standards

No other country reports its investments exactly like we do in the United States. Most countries report short-term investments at lower of cost or market. Some, including Argentina and Israel, report at fair value.

Most countries report noncurrent investments (other than equity method investments) at fair value or cost, but methods vary widely, ranging from unadjusted historical cost (China) to fair market value (New Zealand).

However, International Financial Reporting Standards (IAS 39) classify investments as available-for-sale, trading, or held-to-maturity as we do in the U.S. Available-for-sale and trading securities are carried at fair value and unrealized gains and losses are created the way as in the U.S.

¹⁹ Except in the case of short-term investments, the accounting significance of the instrument is determined by the nature of the instrument.

²⁰ The term “financial instrument” is defined in IAS 32, *Financial Instruments: Presentation*, as “any contract that gives rise to a financial asset or financial liability for one or more entities.”

²¹ For a more detailed discussion of these instruments, see Chapter 13, *Financial Instruments*.

²² For a more detailed discussion of these instruments, see Chapter 13, *Financial Instruments*.

²³ For a more detailed discussion of these instruments, see Chapter 13, *Financial Instruments*.

The FASB's ongoing financial instruments project is expected to develop a new framework for accounting for all financial instruments.



managing risk. So maligned in the press have been derivatives that, in a recent conference James Leapearing, then the FASB's vice chairman, facetiously defined a derivative as "an investment that lost money this year."

Actually, the FASB has been involved since 1986 in a project to provide a consistent framework for resolving financial instrument accounting issues, including those related to derivatives and other "off-balance-sheet" instruments. The financial instruments project has three separate but related tasks: disclosure, recognition and measurement, and distinguishing between liabilities and equities. Unfortunately, issues to be resolved are extremely complex and will likely require several years to resolve. To help fill the disclosure gap in the meantime, the FASB has offered a series of temporary "patchwork" solutions. These are primarily in the form of additional disclosures for financial instruments. More recently, the FASB has tackled the issues of recognition and measurement. We discuss these requirements in Appendix A after we've spent some time with the measurement issues necessary to undertake accounting for derivatives.

FINANCIAL REPORTING CASE SOLUTION

How should you respond? Why are held-to-maturity securities treated differently from other investment securities? (p. 562) You should explain that for an investor has the positive intent and ability to hold the securities to maturity, investments in debt securities are classified as held-to-maturity and reported at amortized cost in the balance sheet. Increases and decreases in market value are not reported in the financial statements. The reasoning is that the changes are irrelevant to an investor who will hold a security to its maturity regardless of those changes. Changes in the market value between the time a debt security is acquired and the day it matures to a predetermined maturity value aren't important if sale before maturity isn't an alternative.

- Why are unrealized gains and losses not reported on the income statement? (p. 564)** Available-for-sale securities are not acquired for the purpose of profiting from short-term market price changes, so the argument made by the FASB is that gains and losses from holding these securities while prices change are not considered relevant performance measures to be included in earnings.
- What is comprehensive income? (p. 564)** Comprehensive income is a more expansive view of the change in shareholders' equity than traditional net income. In fact, it encompasses changes in equity other than from transactions with owners. In addition to net income, comprehensive income includes up to four other changes in equity.
- Anticipate his next question and explain why Coke accounts for some of its investments by the equity method and what that means. (p. 576)** When an investor does not have control, but still is able to exercise significant influence over the operating and financial policies of the investee, the investment should be accounted for by the equity method. Apparently Coke owns between 20% and 50% of the voting shares of some of the foreign invests in. By the equity method, Coke recognizes investment income in an amount equal to its percentage share of the net income earned by those companies, instead of the money that net income it receives as cash dividends. The rationale is that as the investee earns additional net assets, Coke's share of those net assets increases. ■

THE BOTTOM LINE

- Investment securities are classified for reporting purposes as held-to-maturity, available-for-sale, or trading securities. If an investor has the positive intent and ability to hold securities to maturity, investments in debt securities are classified as held-to-maturity and reported at amortized cost in the balance sheet. These investments are measured at cost, and holding gains or losses from market price changes are ignored.
- Investments in debt and equity securities that don't fit the definitions of the other reporting categories are classified as available-for-sale. They are reported at their fair value.

Holding gains and losses from retaining securities during periods of price change are not included in the determination of income for the period; they are reported as a separate component of shareholders' equity.

3. Investments in debt or equity securities acquired principally for the purpose of selling them in the near future are classified as trading securities. They are reported at their fair values. Holding gains and losses for trading securities are included in earnings.
4. When an investor is able to exercise significant influence over the operating and financial policies of the investee, the investment should be accounted for by the equity method. Usually an investor can exercise significant influence when it owns between 20% and 40% of the investee's voting shares.
5. By the equity method, the investor recognizes investment income equal to its percentage share (based on share ownership) of the net income earned by the investee, rather than the portion of that net income received as cash dividends. The investment account is adjusted for the investor's percentage share of net income reported by the investee. When the investor actually receives dividends, the investment account is reduced accordingly.
6. When the cost of an investment exceeds the book value of the underlying net assets acquired, both the investment account and investment revenue are adjusted for differences between net income reported by the investee and what that amount would have been if consolidation procedures had been followed. ■

OTHER INVESTMENTS (SPECIAL PURPOSE FUNDS, INVESTMENTS IN LIFE INSURANCE POLICIES)

Special Purpose Funds

It often is convenient for companies to set aside money to be used for special purposes. You remember from your study of Chapter 11 that we discussed petty cash funds. Recall that a petty cash fund is money set aside to conveniently make small expenditures using currency rather than having to follow the time-consuming, formal procedures usually used to process checks. Similar funds sometimes are used to pay interest, payroll, or short-term needs. Like petty cash, these short-term special purpose funds are reported as current assets.

Special purpose funds also are sometimes established to serve longer-term needs, such as, for instance, to periodically set aside cash into a fund designated to repay bonds and other long-term debt. Such funds usually accumulate cash over the debt's term to maturity and are expended at the company's periodic contribution payments to creditors. Some investments in the money or variable return generating investments, such as some debt contracts, require companies to establish such a fund to repay the debt. In similar fashion, management might routinely choose to establish a fund to accumulate money to expand facilities, provide for expected losses, to buy back shares of stock, or any other special purpose that might benefit from the accumulation of funds. Of course, these funds that won't be used within the upcoming operating cycle are noncurrent assets. They are reported as part of investments and cash. The same criteria for classifying securities into reporting categories that we discussed earlier should be used to classify securities in which funds are invested. Any investment income from these funds is reported as such on the income statement.

Investments in Life Insurance Policies

Companies frequently buy life insurance policies on the lives of their key officers. Under certain circumstances, the company pays the premium for the policy and as beneficiary, receives the proceeds when the officer dies. Of course, the objective is to compensate the company for the untimely loss of a valuable resource in the event the officer dies. However, some types of life insurance policies can be surrendered while the insured is still alive to exchange for a determinable amount of money, called the cash surrender value. In effect, a

Some special purpose funds—like a petty cash fund—may be used for current needs.

A special purpose fund can be established for virtually any purpose.

Noncurrent investments include cash and investments in debt and equity securities, investments and funds.

Cash in life insurance policies can be exchanged for cash or other assets while the insured is still alive to exchange for the cash surrender value.

portion of each premium payment is not used by the insurance company to pay for life insurance coverage, but instead is invested on behalf of the insured company in a fixed-income investment. Accordingly, the cash surrender value increases each year by the portion of premium invested plus interest on the previous amount invested. This is simply a characteristic of whole life insurance, unlike term insurance whose lower premiums provide death benefits only.

From an accounting standpoint, the periodic insurance premium should not be expensed in its entirety. Rather, part of each premium payment, the investment portion, is recorded as an asset. Illustration 12A-1 provides an example. ■

Each year each company pays a premium of \$10,000. The cash surrender value at the end of each year is \$10,000.

ILLUSTRATION 12A-1 Cash Surrender Value

Part of the premium is used to pay for the death benefit. The cash surrender value at the end of each year is \$10,000.

When the death benefit is paid, the cash surrender value is used to pay for the death benefit. The cash surrender value at the end of each year is \$10,000.

Several years ago, American Capital Insurance Company issued a \$1 million insurance policy on the life of its chief executive officer, naming American Capital as beneficiary. Annual premiums are \$10,000, payable at the beginning of each year. In 2006, the cash surrender value of the policy increased according to the contract from \$5,000 to \$7,000. The CEO died at the end of 2006.

| | | |
|--|--------|-------|
| Insurance expense (difference) | 16,000 | |
| Cash surrender value of life insurance (\$7,000) | 2,000 | |
| Cash (2006 premium) | | 8,000 |

To record insurance expense and the increase in the investment

The cash surrender value is considered to be a noncurrent investment and would be reported in the investments and funds section of the balance sheet. Of course, when the chief executive officer dies, the corporation receives the death benefit of the insurance policy and the cash surrender value ceases to exist. At that time, the corporation recognizes a gain for the amount of the death benefit less the cash surrender value.

| | | |
|--|-----------|---------|
| Cash (death benefit) | 1,000,000 | |
| Cash surrender value of life insurance (removed) | | 7,000 |
| Gain on life insurance settlement (difference) | | 993,000 |

To record the proceeds of a death

IMPAIRMENT OF A RECEIVABLE DUE TO A TROUBLED DEBT RESTRUCTURING

When a creditor's receivable becomes impaired due to a troubled debt restructuring or for any other reason, the receivable is remeasured based on the discounted present value of its currently expected cash flows at the loan's original effective rate, regardless of the extent to which expected cash receipts have been reduced.

When the original terms of a debt agreement are changed as a result of financial difficulties experienced by the debtor (borrower), the new arrangement is referred to as a troubled debt restructuring. We discuss troubled debt restructurings in much more detail in Chapter 14. The essential point here is that such an arrangement involves some concessions on the part of the creditor (lender), resulting in the impairment of the creditor's asset: the investment in a receivable.

When the Receivable Is Settled Outright

Sometimes a receivable in a troubled debt restructuring is actually settled at the time of the restructuring with the receipt of cash (or a noncash asset), or even shares of the debtor's stock. In that case, the creditor simply records a loss for the difference between the carrying amount of the receivable and the fair value of the assets (or equity securities) received. Illustration 12B-1 provides an example.



First Prudent Bank is owed \$30 million by Bright Properties under a 10% note with two years remaining to maturity. Due to financial difficulties of the developer, the previous year's interest payment was not received. The bank agrees to settle the receivable in exchange for property having a fair market

value of \$27 million. Under a 10% note with two years remaining to maturity, the previous year's interest payment was not received. The bank agrees to settle the receivable (and accrued interest) of \$33 million.

| | (\$ in millions) |
|--|------------------|
| and fair market value) | 27 |
| and troubled debt restructuring | 33 |
| Accrued interest receivable (10% \$30 million) | 3 |
| Net receivable balance | 30 |

For most active lenders, a troubled debt restructuring arrangement is not both unusual and infrequent; so usually the loss is not reported as an extraordinary loss.

ILLUSTRATION 12B-1

Debt Settled at the Time of a Restructuring

The carry-forward amount of the receivable is \$3 million.

When the Receivable Is Continued but with Modified Terms

In the previous example we assumed that First Prudent Bank agreed to accept property in settlement of the receivable in a troubled debt restructuring. It is more likely that the bank will allow the receivable to continue but with the terms of the debt agreement modified to make it easier for the debtor to comply. The lender will agree to reduce or delay the scheduled interest payments, but it may agree to reduce or delay the maturity amount. Other examples of debt restructuring will call for some combination of these concessions.

As one of many possibilities, suppose the bank agrees to: (1) forgive the interest accrued on last year, (2) reduce the two remaining interest payments from \$3 million each to \$2 million each, and (3) reduce the face amount from \$30 million to \$25 million. Clearly, the bank's estimate of the receivable has been impaired. The extent of impairment is the difference between the \$33 million carrying amount of the receivable (the present value of the receivable's cash flows prior to the restructuring) and the present value of the revised cash flows discounted at the loan's original effective rate (10%). See Illustration 12B-2 for a demonstration. After restructuring, the lender still records interest annually at the 10% effective rate. ■

Bright Properties owes First Prudent Bank \$30 million under a 10% note with two years remaining to maturity. Due to financial difficulties of the developer, the previous year's interest payment was not received. First Prudent Bank agrees to forgive the interest accrued from last year and reduce the remaining two interest payments to \$2 million each. It also reduces the principal to \$25 million.

Analysis

| Previous Value | | |
|---|--|--------------|
| Accrued interest | $0\% \times \$30,000,000$ | \$ 3,000,000 |
| Principal | | 30,000,000 |
| Carrying amount of the receivable | | \$33,000,000 |
| New Value | | |
| Interest | $\$2 \text{ million} \times 1.73554^2 = \$3,471,080$ | |
| Principal | $\$25 \text{ million} \times 0.82643 = 20,660,750$ | |
| Present value of the receivable | | (24,137,330) |
| Loss | | \$ 8,867,670 |
| $\text{Loss} = \text{Carrying amount of } \$33,000,000 - \text{Present value of } \$24,137,330 = \$8,867,670$ | | |

Journal Entry

| | | |
|--|-----------|-----------|
| on troubled debt restructuring (to balance) | 8,867,670 | |
| Accrued interest receivable (10% × \$30,000,000) | | 3,000,000 |
| Notes receivable (\$30,000,000 - 24,137,330) | | 5,867,670 |

ILLUSTRATION 12B-2

Receivable Impaired by Troubled Debt Restructuring—Terms Modified

The discount factor for the present value of the cash flows on the note is 0.82643. The carrying amount of the receivable is \$33 million.

The discount factor for the present value of the cash flows on the note is 0.82643.

The difference is \$8,867,670.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 12-1** All investments in debt securities and equity securities are held for sale. Explain how the classification of an investment as either a trading security, an available-for-sale security, or a held-to-maturity security affects the accounting for the investment at the end of the reporting period.
- Q 12-2** When market value increases or decreases, how should you handle the change in the carrying amount of an investment in a fixed-rate security? How does the change in the carrying amount affect the market value of interest paid after a fixed-rate security is purchased, the fixed-interest payments become more attractive, and the market value of the investment rises. How are these price changes reflected in investment account for a security classified as held-to-maturity?
- Q 12-3** When is the fair value of an equity security considered to be readily determinable? How is an investment in an equity security reported if its fair value is not readily determinable?
- Q 12-4** When an investment is acquired to be held for an unspecified period of time as opposed to being held to maturity, it is reported at the fair value of the investment securities at the reporting date. Why?
- Q 12-5** Reporting an investment at its fair value means adjusting its carrying amount for changes in fair value at its acquisition (or since the last reporting date if it was held at that time). Such changes are called holding gains and losses because they haven't yet been realized through the sale of the security. If the security is classified as available-for-sale, how are unrealized holding gains and losses reported?
- Q 12-6** What impairment losses are its acquisition cost minus its fair value at the reporting date? How should the loss be reported?
- Q 12-7** Why are holding gains and losses treated differently for trading securities and securities available-for-sale?
- Q 12-8** The market value of Hing Forestry and Mining Corporation common stock dropped 60 points when it started trading on the New York Stock Exchange. The company's earnings fell 10 percent. How should the decline in market value be handled by Harris?
- Q 12-9** Western Ore-Cutting Company holds an investment in measured bonds of LCB Mining Equipment, Inc. When the investment was acquired, management's intention was to hold the bonds for resale. How should the investment be accounted for?
- Q 12-10** Is it necessary for an investor to report individual amounts for the three categories of investments—held-to-maturity, available-for-sale, or trading—in the financial statements? What information should be disclosed about these investments?
- Q 12-11** Under what circumstances is the equity method used in account for an investment in stock?
- Q 12-12** The equity method has been referred to as a "black box" method. What might explain this description?
- Q 12-13** In the application of the equity method, how should dividends from the investee be accounted for? Why?
- Q 12-14** The acquisition of debt securities of Super Company by Super Company, which then held the securities for 10 years, is described in the accompanying information. The company is being described in the accompanying information. When the company acquired the securities, it was classified as an investment by the equity method. How will the situation described affect these two accounts?
- Q 12-15** Superior Company owns 40% of the outstanding stock of Bernard Company. During 2006, Bernard paid \$100,000 cash dividend on its common shares. What effect did this dividend have on Superior's 2006 net income?
- Q 12-16** Sometimes an investor's level of influence changes, making it necessary to change from the equity method to another method. How should the investor account for this change in accounting method?
- Q 12-17** Define a financial instrument. Provide three examples of current liabilities that represent financial instruments. Some financial instruments are called derivatives. Why?
- Q 12-18** Based on Appendix 12A, Northwest Corporation Company established a fund in 2003 to accumulate money for a new plant scheduled for construction in 2006. How should this special purpose fund be reported in Northwest's financial statements?
- Q 12-19** Based on Appendix 12A, Whole Life Insurance policies typically can be surrendered while the insured is alive in exchange for a determinable amount of money called the cash surrender value. When a company buys a life insurance policy on the life of a key officer to protect the company against the untimely loss of the officer, how should the company account for the cash surrender value?
- Q 12-20** (Based on Appendix 12B) Marshall Companies, Inc. holds a note receivable from a former subsidiary. The former subsidiary has filed for bankruptcy and is unable to pay the previous year's interest on the note. Marshall agrees to restructure the debt by both delaying and reducing remaining cash payments. The company reports the creditor's investment in the receivable. How is this impairment recorded?

BRIEF EXERCISES

BE 12-1

Securities held-to-maturity; bond investment; effective interest

Lance Brothers Enterprises acquired \$130,000 of 3% bonds, dated July 1, on July 1, 2006, as a long-term investment. Management has the positive intent and ability to hold the bonds until maturity. The related effective rate (yield) was 4% for bonds of similar risk and maturity. Lance Brothers paid \$660,000 for the investment in bonds and will receive interest semiannually on June 30 and December 31. Prepare the journal entry to record the purchase of the bonds on July 1, 2006, and the receipt of interest on December 31, 2006, at the effective interest rate.

LP5, Inc. purchased 2,000 shares of W. H. Disney common stock at \$27 per share and paid a brokerage fee of \$400. The company sold the shares three months later for \$29 per share, paying a brokerage fee on the sale of \$450. What are the journal entries LP5 recorded for the purchase and the sale?

BE 12-3

Securities available-for-sale; adjusting entry

For several years, Tiger Links Products owned 10,000 shares of Miramar common stock, considered by the company to be securities available-for-sale. The shares were acquired at a cost of \$500,000. Their fair value last year was \$60,000 and is \$670,000 this year. At what amount will the investment be reported in this year's balance sheet? What adjusting entry is required to accomplish this objective?

Admin Industries holds 40,000 shares of FedEx common stock. On December 31, 2005, and December 31, 2006, the market value of the stock is \$45 and \$100 per share, respectively. What is the appropriate reporting category for this investment and at what amount will it be reported in the 2006 balance sheet?

FedEx Corporation

BE 12-5

Trading securities

S&L Financial buys and sells securities expecting to earn profits on short-term differences in price. On December 31, 2007, S&L purchased 100,000 common shares for \$875,000 and sold the shares on January 1, 2007, for \$910,000. At December 31, the shares had a fair value of \$873,000. What pretax amounts did S&L include in its 2006 and 2007 earnings as a result of this investment?

S&L Financial buys and sells securities which it classifies as available-for-sale. On December 27, 2006, S&L purchased Coca-Cola common shares for \$875,000 and sold the shares on January 3, 2007, for \$890,000. At December 31, the shares had a fair value of \$873,000. What pretax amounts did S&L include on its 2006 and 2007 earnings as a result of this investment?

Turner Corporation owns 80% of the outstanding stock of L.A. Company. During the current year, L.A. paid a \$5 million cash dividend to its common shareholders. What effect did this dividend have on Turner's 2006 financial statements?

Turner Company owns 10% of the outstanding stock of L.A. Company. During the current year, L.A. paid a \$5 million cash dividend to its common shareholders. What effect did this dividend have on Turner's 2006 financial statements?

BE 12-9

Cost method

The fair value of Weller, Inc.'s depreciable assets exceeds their book value by \$50 million. The assets have an average remaining useful life of 10 years and are being depreciated by the straight-line method. Park Industries buys 30% of Weller's common shares. When Park adjusts its investment accounts and the investment by the equity method, how will the situation described affect those two accounts?

LED Corporation owns 10,000 shares of Branch Pharmaceuticals common stock and classifies its investment as securities available-for-sale. The market price of Branch's stock fell over 30% by 4.5 points when the FDA banned one of the company's principal drugs. What journal entry should LED record to account for the decline in market value? How should the decline be reported?

At the beginning of 2006, Pioneer Products' ownership interest in the common stock of L.B. Co. increased to the point that it became appropriate to begin using the equity method of accounting for the investment. The balance in the investment account was \$40 million at the time of the change. But should have been \$50 million if Turner had used the equity method and the account had been adjusted for income, net income, and dividends. How should Pioneer report the change? Would your answer be the same if Pioneer is changing from the equity method rather than to the equity method?

EXERCISES

E 12

Securities held-to-maturity bond investment effective interest

LO 1

An alternate exercise and problem set is available on the text website: www.mhhe.com/qwac/eb12e

Tanner-LNP Corporation acquired as a long-term investment \$2,400 million of 6% bonds dated July 1, 2006, from an issuer who guarantees that the issuer will have the ability to hold the bonds until maturity. The issuer's credit rating was A-1. The bonds were purchased at a premium of \$100 million. The issuer will receive the first semi-annual interest payment of \$120 million on December 31, 2006. As a result of changing market conditions, the fair value of the bonds on December 31, 2006, was \$210 million.

Required:

1. Prepare the journal entry to record Tanner-LNP's investment in the bonds on July 1, 2006.
2. Prepare the journal entry by Tanner-LNP to record interest on December 31, 2006, at the effective market rate.
3. At year-end with Tanner-LNP reports its investment on the December 31, 2006, balance sheet. What?
4. Suppose Moody's bond rating agency downgraded the risk rating of the bonds shortening Tanner-LNP's useful life to January 1, 2007, to \$100 million. Prepare the journal entry to record the sale.

E 12-2

Securities held-to-maturity

LO 1

TF&T Corporation is a confectionery wholesaler that frequently has available its securities to meet various investment objectives. The following selected transactions relate to TF&T's investment activities during the last two months of 2006. On November 1, TF&T held \$48 million of 3-year, 3% bonds of Convenience, Inc. purchased May 1, 2006, at face value. Management has the positive intent and ability to hold the bonds until maturity. TF&T's fiscal year ends on December 31.

- Nov. 1 Received semiannual interest of \$2.4 million from the Convenience, Inc. bonds.
Dec. 1 Purchased 12% bonds of Facsimile Enterprises at their \$30 million face value, to be held until they mature in 2019. Semiannual interest is payable May 31 and November 30.
31 Purchased U.S. Treasury bills that mature in two months for \$0.9 million.
31 Recorded any necessary adjusting entry(ies) relating to the investments.

The fair values of the investments at December 31 were:

| | |
|-----------------------------|----------------|
| Convenience bonds | \$46.7 million |
| Facsimile Enterprises bonds | \$0.0 million |
| U.S. Treasury bills | \$0.9 million |

Required:

Prepare the appropriate journal entry for each transaction or event.

E 12-3

Purchase and sale of investment securities

LO 1, LO 3

Shott Farm Supplies Corporation purchased 100 shares of General Motors stock at \$50 per share and paid a brokerage fee of \$100. Two months later, the shares were sold for \$53 per share. The brokerage fee on the sale was \$100.

Required:

Prepare entries for the purchase and the sale.

E 12-4

Securities available-for-sale adjusting entries

LO 2

Loreal-Americans Corporation purchased several marketable securities during 2006. At December 31, 2006, the company had the investments in common stock listed below. None was held at the last reporting date, December 31, 2005, and all are considered securities available for sale.

| | Cost | Fair Value | Unrealized Holding Gain (Loss) |
|-------------------|--------------|--------------|--------------------------------|
| Short term: | | | |
| Black in | \$ 480,000 | \$ 405,000 | \$ (75,000) |
| ABC Corporation | 450,000 | 485,000 | 35,000 |
| Totals | \$ 930,000 | \$ 890,000 | \$ (40,000) |
| Long term: | | | |
| Drake Corporation | \$ 800,000 | \$ 540,000 | \$ (260,000) |
| Aaron Industries | 700,000 | 600,000 | (100,000) |
| Totals | \$ 1,500,000 | \$ 1,140,000 | \$ (360,000) |

Required:

1. Prepare appropriate adjusting entries at December 31, 2006.
2. What amount would be reported in the income statement at December 31, 2006, as a result of net adjusting entries?

In February 1, 2006, Construction Forms Corporation purchased 10,000 shares of Zenth Corporation stock as a long-term investment at \$60 per share. On December 31, 2006 and December 31, 2007, the market value of ZST stock is \$45 and \$60 per share respectively.

Required:

1. What is the appropriate reporting category for this investment? Why?
2. Prepare the adjusting entry for December 31, 2006.
3. Prepare the adjusting entry for December 31, 2007.

Construction Forms Corporation buys securities to be available for sale when circumstances warrant, not to profit from short-term differences in price and not necessarily to hold debt securities to maturity. The following selected transactions relate to investment securities of Construction Forms whose fiscal year ends on December 31. No investments were held by Construction Forms at the beginning of the year.

2006

- | | |
|---------|--|
| Mar. 2 | Purchased 1 million Platinum Gauges, Inc. common shares for \$31 million, including brokerage fees and commissions. |
| Apr. 12 | Purchased \$20 million of 10% bonds at face value from Zenth Wholesale Corporation. |
| July 18 | Received cash dividends of \$2 million on the investment in Platinum Gauges, Inc. common shares. |
| Oct. 15 | Received semi-annual interest of \$3 million on the investment in Zenth bonds. |
| 6 | Sold the Zenth bonds for \$20 million. |
| Nov. 1 | Purchased 50,000 LTD International preferred shares for \$40 million, including brokerage fees and commissions. |
| Dec. 31 | Revalued the net carrying amount of each investment to the market price of the investments on 12/31/06. The market price of the investments are \$45 per share for Platinum Gauges, Inc. and \$14 per share for LTD International preferred. |

2007

- | | |
|---------|---|
| Jan. 23 | Sold half the Platinum Gauges, Inc. shares for \$32 per share. |
| Mar. 1 | Sold the LTD International preferred shares for \$76 per share. |

Required:

1. Prepare the appropriate journal entry for each transaction in event.
2. Show the amounts that would be reported in the company's 2006 income statement relative to these investments.

On January 2, 2006, Sanborn Tobacco, Inc. bought 5% of Jackson Industry's capital stock for \$800 million as a temporary investment. Sanborn also valued the securities acquired as available-for-sale. Jackson Industry's net income for the year ended December 31, 2006, was \$420 million. The fair value of the shares held by Sanborn was \$98 million at December 31, 2006. During 2006, Jackson declared a dividend of \$40 million.

Required:

1. Prepare all appropriate journal entries related to the investment during 2006.
2. Indicate the effect of this investment on 2006 income before taxes.

Ranzow-Lear Company buys and sells securities expecting to earn profits on short-term differences in price. The company's fiscal year ends on December 31. The following selected transactions relating to Ranzow-Lear's trading account occurred during December 2006 and the first week of 2007.

2006

- | | |
|---------|--|
| Dec. 17 | Purchased 100,000 Grocers Supply Corporation preferred shares for \$350,000. |
| 28 | Received cash dividends of \$2,000 from the Grocers Supply Corporation preferred shares. |
| 31 | Recorded any necessary adjusting entry relating to the Grocers Supply Corporation preferred shares. The market price of the stock was \$4 per share. |

2007

- | | |
|--------|---|
| Jan. 6 | Sold the Grocers Supply Corporation preferred shares for \$395,000. |
|--------|---|

Required:

1. Prepare the appropriate journal entry for each transaction.
2. Indicate any amounts that Ranzow-Lear Company would report in its 2006 balance sheet and income statement as a result of this investment.

A. December 31, 2006, Hub-Meyers Corporation had the following investments that were purchased during 2006, its first year of operations.

| | Cost | Fair Value |
|---|---------------------|---------------------|
| Trading Securities: | | |
| Security A | \$ 900,000 | \$ 910,000 |
| Security B | 100,000 | 100,000 |
| Totals | <u>\$ 1,000,000</u> | <u>\$ 1,010,000</u> |
| Securities Available-for-Sale: | | |
| Security C | \$ 700,000 | \$ 700,000 |
| Security D | 900,000 | 915,000 |
| Totals | <u>\$ 1,600,000</u> | <u>\$ 1,615,000</u> |
| Securities to Be Held-to-Maturity: | | |
| Security E | \$ 490,000 | \$ 500,000 |
| Security F | 515,000 | 510,000 |
| Totals | <u>\$ 1,005,000</u> | <u>\$ 1,010,000</u> |

No investments were sold during 2006. All securities except Security D and Security F are classified as short-term investments. None of the market changes is considered permanent.

Required

Prepare the following statements at December 31, 2006:

- Investments reported as current assets.
- Investments reported as noncurrent assets.
- Unrealized gain (or loss) component of income before taxes.
- Unrealized gain (or loss) component of shareholders' equity.

E 12-10

Securities available-for-sale; adjusting entries

• 17 min

The accounting records of *European Importers, Inc.* at January 1, 2006, included the following:

| | |
|---|--------------------|
| Assets: | |
| Investment in IBM common shares | \$1,345,000 |
| Less: Fair value adjustment | (145,000) |
| | <u>\$1,200,000</u> |
| Shareholders' Equity: | |
| Accumulated unrealized holding gains and losses | \$ 145,000 |

No changes occurred during 2006 in the investment portfolio.

Required

Prepare appropriate adjusting entries at December 31, 2006, assuming the market value of the IBM common shares was:

- \$1,175,000
- \$1,275,000
- \$1,375,000

E 12-11

Securities available-for-sale; fair value adjustment

• 10 min

The investments of *Harlow Enterprises* included the following cost and fair value amounts.

| (in millions) | | Fair Value Dec. 31 | |
|--------------------------------------|--------------|--------------------|--------------|
| Securities Available-for-Sale | Cost | 2006 | 2007 |
| A Corporation shares | \$ 20 | \$14 | na |
| B Corporation bonds | 30 | 25 | \$ 37 |
| C Corporation shares | 15 | na | 16 |
| D Industries shares | 40 | 46 | 50 |
| Totals | <u>\$105</u> | <u>\$85</u> | <u>\$101</u> |

Harlow Enterprises sold its holdings of A Corporation shares on June 1, 2007, for \$15 million. On September 12, it purchased the C Corporation shares.

Required

- What is the effect of the sale of the A Corporation shares and the purchase of the C Corporation shares on Harlow's 2007 pretax earnings?
- As what amount should Harlow's securities available-for-sale portfolio be reported in its 2007 balance sheet? What adjusting entry is needed to accomplish this? What is the effect of the adjustment on Harlow's 2007 pretax earnings?

E 12-12

Multiple choice
investment securities

• 10 min

The following questions dealing with investments are adapted from questions that appeared in previous examinations. Determine the response that best completes the statements or questions.

Nola Co. has adopted *Statement of Financial Accounting Standards No. 115*, "Accounting for Investments in Debt and Equity Securities." Nola has a portfolio of marketable equity securities co-

does not intend to sell in the near term. How should Nola classify these securities, and how should it report unrealized gains and losses from these securities?

| Classify as | Report as a |
|--|--|
| a. Trading securities | Component of income from continuing operations |
| b. Available-for-sale trading securities | Separate component of shareholders' equity |
| c. Available-for-sale | Separate component of shareholders' equity |
| | Excluded from continuing operations |

Kale Co. has adopted *Statement of Financial Accounting Standards No. 113, "Accounting for Certain Investments in Debt and Equity Securities"*. Kale purchased bonds at a discount on the open market as an investment and intends to hold these bonds to maturity. Kale should account for these bonds as:

- Cost
- Amortized cost
- Full value
- Lower of cost or market

As a long-term investment, Paulster Equipment Company purchased 20% of AMC Supplies, Inc. 440,000 shares for \$440,000 at the beginning of the fiscal year of both companies. On the purchase date, the fair value and book value of AMC's net assets were equal. During the year, AMC earned net income of \$250,000 and distributed cash dividends of 25 cents per share. At year-end, the fair value of the shares is \$300,000.

Required:

Assume no significant influence was acquired. Prepare the appropriate journal entries from the purchase through the end of the year.

2. Assume significant influence was acquired. Prepare the appropriate journal entries from the purchase through the end of the year.

As a long-term investment at the beginning of the fiscal year, Florida International purchased 40% of Murray Supplies, Inc. a 8 million shares for \$56 million. The fair value and book value of the shares were the same at that time. During the year, Murray Supplies earned net income of \$40 million and distributed cash dividends of \$1.25 per share. At the end of the year, the fair value of the shares is \$47 million.

Required:

Prepare the appropriate journal entries from the purchase through the end of the year.

The Frump Companies, Inc. has ownership interests in several public companies. At the beginning of 2006, the company's ownership interest in the common stock of Million Properties increased to the point that it became appropriate to begin using the equity method of accounting for the investment. The balance in the investment account was \$21 million at the time of the change. Accountants working with company records determined that the balance would have been \$44 million if the account had been adjusted for investor net income and dividends as prescribed by the equity method.

Required:

Prepare the journal entry to record the change in principle.

2. Briefly describe other steps Frump should take to report the change.

3. Suppose Frump is changing from the equity method rather than to the equity method. How would you approach requirements 1 and 2?

On December 2, 2006, an investment company \$80,000 was sold for \$100,000. The total of the sale proceeds was credited to the investment account.

Required:

Prepare the journal entry to correct the error assuming it is discovered before the books are adjusted or closed in 2006. Ignore income taxes.

2. Prepare the journal entry to correct the error assuming it is not discovered until early 2007. (Ignore income taxes.)

Fizer Pharmaceuticals paid \$64 million on January 2, 2006, for 4 million shares of Carme Cosmetics common stock. The investment represents a 25% interest in the net assets of Carme and gave Fizer the ability to exercise significant influence over Carme's operations. Fizer received dividends of \$1 per share on December 31, 2006, and Carme reported net income of \$40 million for the year ended December 31, 2006. The market value of Carme's common stock at December 31, 2006, was \$18.50 per share.

• The book value of Carme's net assets was \$1.9 million.

• The fair market value of Carme's depreciable assets exceeded their book value by \$32 million. These assets had an average remaining useful life of eight years.

• The remainder of the excess of the cost of the investment over the book value of net assets purchased was attributable to goodwill.

Investment securities
to equity method
investments compared

• 50%

Equity method:
Investment
same dividends

• 50%

Investment securities
to equity method

• 50%

Investment securities
to equity method

• 50%

Investment securities
to equity method

• 50%

E 12-18
Equity method

• LOS 106

Required:

Prepare all appropriate journal entries related to the investment during 2006.

On January 1, 2006, Cameron purchased 30% of the outstanding common stock of Lake Company for \$44 million. At the date of acquisition of the stock, Lake's net assets had a fair value of \$100 million. There was a value of \$40 million in the difference was attributable to the fair value of land, buildings, and its land exceeding book value, each accounting for one-half of the difference. Lake's net income for the year ended December 31, 2006, was \$150 million. During 2006, Lake declared and paid cash dividends of \$30 million. The buildings have a remaining life of 10 years.

Required:

- Prepare all appropriate journal entries related to the investment during 2006, assuming correct accounts for this investment by the equity method.
- Determine the amounts to be reported by Cameron:
 - As an investment in Cameron's 2006 balance sheet.
 - As investment revenue in the income statement.
 - Among investing activities in the statement of cash flows.

E 12-19
Multiple choice: CPA exam: equity method

• LOS

The following questions dealing with the equity method are adapted from questions that appeared as previous CPA examinations. Determine the response that best completes the requirements of questions. Questions 1-3 are based on the following information.

Grant, Inc. acquired 30% of South Co.'s voting stock for \$200,000 on January 2, 2006. Grant's 30% interest in South gave Grant the ability to exercise significant influence over South's operating and financial policies. During 2006, South earned \$80,000 and paid dividends of \$50,000. South reported earnings of \$15,000 on the six months ended June 30, 2007, and \$10,000 for the six months ended December 31, 2007. Grant's 100% unit sold half of its stock in South for \$150,000. Grant paid its dividends of \$60,000 in October 2007.

- Before income taxes, what amount should Grant include in its 2006 income statement as a result of its investment?
 - \$15,000
 - \$45,000
 - \$50,000
 - \$60,000
- In Grant's December 31, 2006, balance sheet, what should be the carrying amount of this investment?
 - \$200,000
 - \$270,000
 - \$274,000
 - \$270,000
- In its 2007 income statement, what amount should Grant report as gain from the sale of half of its investment?
 - \$15,000
 - \$10,000
 - \$5,000
 - \$45,000

E 12-20
Multiple choice: CMA exam: dividend theory

• LOS 102

The following questions dealing with investments are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation is sponsored by the Institute of Management Accountants (www.imanet.org). Certified members with an objective measure of knowledge and competence in the field of management accounting determine the response that best completes the statements or questions.

- An investment in available-for-sale securities is valued on the balance sheet at:
 - The cost to acquire the asset.
 - Accumulated income minus accumulated dividends since acquisition.
 - Fair value.
 - The par or stated value of the securities.

Questions 1 and 3 are based on the following information concerning Monahan Company's portfolio of debt securities as May 31, year 2 and May 31, year 3. All of the debt securities were purchased by Monahan during June, year 1. Prior to June, year 1, Monahan had no investments in debt or equity securities.

| As of May 31, Year 2 | Amortized Cost | Fair Value |
|--------------------------|----------------|------------|
| Clancy Company bonds | \$168,526 | \$169,800 |
| Beauchamp Industry bonds | 204,964 | 205,200 |
| Marston Inc. bonds | 305,788 | 285,200 |
| Total | \$679,278 | \$660,200 |

| As of May 31, Year 3 | Amortized Cost | Fair Value |
|-------------------------|----------------|------------|
| Clary Company bonds | \$152,545 | \$147,500 |
| Reschump Industry bonds | 104,800 | 104,500 |
| McGraw Inc. bonds | 289,100 | 291,400 |
| Total | \$645,995 | \$643,500 |

Assuming that the above securities are properly classified as available-for-sale securities under SFAS 115, *Accounting for Certain Investments in Debt and Equity Securities*, the unrealized holding gain or loss as of May 31, year 3 would be:

- recognized as an \$8,005 unrealized holding gain on the income statement.
- recognized in other comprehensive income by a year-end credit of \$8,005
- recognized in other comprehensive income by a year-end debit of \$8,005
- not recognized

3. Assuming that the above securities are properly classified as held-to-maturity securities under SFAS 115, *Accounting for Certain Investments in Debt and Equity Securities*, the unrealized holding gain or loss as of May 31, year 3 would be:

- recognized as an \$8,005 unrealized holding gain on the income statement
- recognized in other comprehensive income by a year-end credit of \$8,005
- recognized in other comprehensive income by a year-end debit of \$8,005
- not recognized

Fidèle Chemicals Corporation owns a \$4 million whole life insurance policy on the life of its CEO, naming Fidèle Chemicals as beneficiary. The annual premiums are \$70,000 and are payable at the beginning of each year. The cash surrender value of the policy was \$21,000 at the beginning of 2006.

Required:

- Prepare the appropriate 2006 journal entry to record insurance expense and the increase in the investment assuming the cash surrender value of the policy increased according to the contract in 2006.

The CEO died at the end of 2006. Prepare the appropriate journal entry.

Below are two unrelated situations relating to life insurance.

Required:

Prepare the appropriate journal entry for each situation.

1. Ford Corporation owns a whole life insurance policy on the life of its president, Ford Corporation is the beneficiary. The insurance premium is \$25,000. The cash surrender value increased during the year from \$1,500 to \$4,000.

- Petrickson Corporation received a \$100,000 life insurance settlement when its CEO died. At that time, the cash surrender value was \$10,000.

At January 1, 2006, Clayton Hotel, Inc. owed Third BancCorp \$12 million, under a 10% note due December 31, 2007. Interest was paid last on December 31, 2004. Clayton was experiencing severe financial difficulties and asked Third BancCorp to modify the terms of the debt agreement. After negotiation Third BancCorp agreed to:

- Forgive the interest accrued for the year just ended
- Reduce the remaining two years' interest payments to \$1 million each
- Reduce the principal payment to \$11 million

Required:

Prepare the journal entries by Third BancCorp necessitated by the restructuring of the debt at January 1, 2006.

- December 31, 2006
- December 31, 2007

At January 1, 2006, NCI Industries, Inc. was indebted to First Federal Bank under a \$250,000, 10% note maturing on December 31, 2007. The note was signed January 1, 2001, and was due December 31, 2007. Annual interest was last paid on December 31, 2004. NCI was experiencing severe financial difficulties and negotiated a restructuring of the terms of the debt agreement. First Federal agreed to reduce last year's interest and the remaining two years' interest payments to \$1,555 each and delay all payments until December 31, 2007, the maturity date.

Required:

Prepare the journal entries by First Federal Bank necessitated by the restructuring of the debt at January 1, 2006.

- December 31, 2006
- December 31, 2007

insurance policy
issued in
2006 (12A)

insurance policy
issued in
2006 (12A)

repayment of
debt available for
debt-related debt
restructuring (Based on
Appendix 12B)

100

restructuring of
securities available for
sale in related debt
restructuring (Based on
Appendix 12B)

100

PROBLEMS

WORKING WITH NUMBERS Practice Problems available at www.mhhe.com/applacct2

P 17.2

Securities held to maturity
bond
investment effective interest

• L1

An alternate exercise and problem set is available on the text website www.mhhe.com/applacct2

Fuzzy Monkey Technologies, Inc. purchased as a long-term investment \$80 million of 8% bonds dated January 1, on January 1, 2006. Management has the positive intent and ability to hold the bonds until maturity. But bonds of similar risk and maturity the market yield was 10%. The price paid for the bonds was \$66 million. Interest is received semiannually on June 30 and December 31. Due to changing market conditions, the fair value of the bonds at December 31, 2006, was \$70 million.

Required

1. Prepare the journal entry to record Fuzzy Monkey's investment on January 1, 2006.
2. Prepare the journal entry by Fuzzy Monkey to record interest on June 30, 2006 (at the effective rate).
3. Prepare the journal entries by Fuzzy Monkey to record interest on December 31, 2006 (at the effective rate).
4. At what amount will Fuzzy Monkey report its investment in the December 31, 2006, balance sheet? Why?

P 17.3

Securities available-for-sale
bond investment
effective interest

• L1

Note: This problem is a variation of the preceding problem, modified to state the investment is to be reported as available-for-sale.

Fuzzy Monkey Technologies, Inc. purchased as a long-term investment \$80 million of 8% bonds dated January 1, on January 1, 2006. Management does not have the investment available for sale when circumstances warrant. But bonds of similar risk and maturity the market yield was 10%. The price paid for the bonds was \$66 million. Interest is received semiannually on June 30 and December 31. Due to changing market conditions, the fair value of the bonds at December 31, 2006, was \$70 million.

Required

1. Prepare the journal entry to record Fuzzy Monkey's investment on January 1, 2006.
2. Prepare the journal entry by Fuzzy Monkey to record interest on June 30, 2006 (at the effective rate).
3. Prepare the journal entries by Fuzzy Monkey to record interest on December 31, 2006 (at the effective rate).
4. At what amount will Fuzzy Monkey report its investment in the December 31, 2006, balance sheet? Why? Prepare any entry necessary to achieve the reporting objective.

P 17.4

Various transactions
related to securities
available for sale

• L2

The following selected transactions relate to investment activities of Ornamental Isolation Corporation. The company buys securities, not intending to profit from short-term differences in price and not usually to hold until maturity, but to have them available for sale when circumstances warrant. Ornamental's fiscal year ends on December 31. No investments were held by Ornamental on December 31, 2005.

2006

- | | |
|---------|--|
| Feb. 21 | Acquired Distribution Transformers Corporation common shares costing \$400,000. |
| Mar. 18 | Received cash dividends of \$8,000 on the investment in Distribution Transformers common shares. |
| Sep. 5 | Acquired \$500,000 of American Instruments' 10% bonds at face value. |
| Oct. 30 | Sold the Distribution Transformers shares for \$425,000. |
| Nov. 5 | Purchased MSD Corporation common shares costing \$1,400,000. |
| Dec. 31 | Recorded any necessary adjusting entry(ies) relating to the investments. The market prices of the investments are: |

| | |
|----------------------------|-------------|
| American Instruments bonds | \$ 850,000 |
| MSD Corporation shares | \$1,480,000 |

(Hint: Interest must be accrued for the American Instruments bonds.)

2007

- | | |
|---------|--|
| Jan. 20 | Sold the MSD Corporation shares for \$1,485,000. |
| Mar. 1 | Received semiannual interest of \$19,000 on the investment in American Instruments bonds. |
| Aug. 2 | Acquired Vest Communication common shares costing \$630,000. |
| Sep. 1 | Received semiannual interest of \$45,000 on the investment in American Instruments bonds. |
| Dec. 31 | Recorded any necessary adjusting entry(ies) relating to the investments. The market prices of the investments are: |

| | |
|----------------------------|-----------|
| Vest Communication shares | \$670,000 |
| American Instruments bonds | \$830,000 |

For 2007

4. Prepare the appropriate journal entry for each transaction or event during 2007.
5. Include any amounts that Commercial Insulation would report in its 2007 balance sheet and income statement as a result of these investments.
6. Prepare the appropriate journal entry for each transaction or event during 2007.
7. Include any amounts that Commercial Insulation would report in its 2007 balance sheet and income statement as a result of these investments.

American Surety and Fidelity buys and sells securities expecting to earn profits on short-term differences in prices. For the first 11 months of the year, while buying trading securities, it earned \$8 million; losses were \$1 million, and the company had earned \$1 million in investment revenue. The following selected transactions relate to American's trading securities during December, 2006, and the first week of 2007. The company's fiscal year ends on December 31. No trading securities were held by American on December 1, 2006.

2006

- | | |
|---------|---|
| Dec. 12 | Purchased FFG Corporation bonds for \$12 million. |
| 13 | Purchased 2 million Ferry Intercommunications common shares for \$22 million. |
| 15 | Sold the FFG Corporation bonds for \$12.1 million. |
| 22 | Purchased U.S. Treasury bills for \$56 million and Treasury bonds for \$65 million. |
| 23 | Sold half the Ferry Intercommunications common shares for \$10 million. |
| 26 | Sold the U.S. Treasury bills for \$57 million. |
| 27 | Sold the Treasury bonds for \$63 million. |
| 28 | Received cash dividends of \$200,000 from the Ferry Intercommunications common shares. |
| 31 | Recorded any necessary adjusting entries and closing entries relating to the investments. The market price of the Ferry Intercommunications stock was \$5.00 per share. |

2007

- | | |
|--------|--|
| Jan. 2 | Sold the remaining Ferry Intercommunications common shares for \$10.2 million. |
| 5 | Purchased Warehouse Design Corporation bonds for \$34 million. |

For 2007

4. Prepare the appropriate journal entry for each transaction or event during 2007.
5. Include any amounts that American would report in its 2007 balance sheet and income statement as a result of these investments.
6. Prepare the appropriate journal entry for each transaction or event during 2007.

Analysysnet General Corporation is a technology firm that also offers financial services through its equity division. From time to time the company buys and sells securities intending to earn profits on short-term differences in prices. In January, the company bought Warehouse Design Corporation bonds at \$34 million. During the 4th quarter of 2006, the company earned \$4 million in investment revenue. The following selected transactions relate to Analysysnet's trading securities during the first week of 2007. The company's fiscal year ends on December 31.

2006

- | | |
|---------|--|
| Oct. 18 | Purchased 2 million preferred shares of Milwaukee Ventures Company for \$38 million as a speculative investment to be sold under suitable circumstances. |
| 31 | Received semiannual interest of \$1.5 million from the Kansas Abstracts bonds. |
| Nov. 1 | Purchased 10% bonds of Holistic Entertainment Enterprises at their \$12 million face value to be held until they mature in 2013. Semiannual interest is payable April 30 and October 31. |
| 1 | Sold the Kansas Abstracts bonds for \$28 million because rising interest rates are expected to cause their face value to continue to fall. |
| Dec. 1 | Purchased 12% bonds of Household Plastics Corporation at the \$60 million face value, to be held until they mature in 2022. Semiannual interest is payable May 31 and November 30. |
| 20 | Purchased U.S. Treasury bonds for \$5.6 million as trading securities, hoping to earn profits on short-term differences in prices. |
| 21 | Purchased 4 million common shares of NXS Corporation for \$44 million as trading securities, hoping to earn profits on short-term differences in prices. |
| 23 | Sold the Treasury bonds for \$5.7 million. |
| 29 | Received cash dividends of \$3 million from the Milwaukee Ventures Company preferred shares. |
| 31 | Recorded any necessary adjusting entries and closing entries relating to the investments. The market price of the Milwaukee Ventures Company preferred stock was \$27.50 per share and \$14.00 per share for NXS Corporation common. The par values of the bond investments were \$58.7 million for Household Plastics Corporation and \$5.6 million for Holistic Entertainment Enterprises. |

2007

- | | |
|--------|--|
| Jan. 7 | Sold the NXS Corporation common shares for \$43 million. |
|--------|--|

Investment transactions
related to trading
securities

Analysysnet holds common
shares of companies
it plans to sell and
sell securities

Analysysnet

Excel

Required

Prepare the appropriate journal entry for each transaction or event.

At December 31, 2006, the investment in securities available-for-sale of Beale Developments were reported at \$78 million.

P 12-6

Securities available-for-sale fair value adjustment reclassification adjustment

| | |
|-------------------------------|------|
| Securities available-for-sale | \$7 |
| Plus Fair value adjustment | \$70 |

During the year, Beale sold its investment in Beale Pharmaceuticals, which had cost \$25 million, for \$30 million. Three shares had a fair value at December 31, 2006, of \$27 million. No other investments were sold. At December 31, 2007, the investment in securities available-for-sale included the cost and fair value amounts shown below.

| (\$ in millions) | Cost | Fair Value | Unrealized Gain (Loss) |
|-------------------------------|------|------------|------------------------|
| Securities Available-for-Sale | | | |
| Deer Theme's Inc. shares | \$40 | \$47 | \$7 |
| Orphanet Pharmaceutical bonds | 9 | 12 | 3 |
| Totals | \$49 | \$59 | \$10 |

Required

1. What amount should Beale report for securities available-for-sale in its December 31, 2007, balance sheet?

2. What journal entry is needed to enable the investment to be reported at this amount?

3. What is the amount of the reclassification adjustment to 2007 other comprehensive income? Show the reclassification adjustment should be prepared.

P 12-7

Investment securities and equity method investments compared

On January 4, 2006, Ridgway Bakery paid \$324 million for 10 million shares of Lavery Labels Company common stock. The investment represents a 30% interest in the assets of Lavery and gave Ridgway the ability to exercise significant influence over its operations. Ridgway received dividends of \$6 million during the year. At December 31, 2006, the carrying amount of the investment was \$324 million. At December 31, 2006, the book value of Lavery's net assets was \$800 million and the fair market value of Lavery's identifiable assets, with an average remaining useful life of six years, exceeded book value by \$80 million.

- The fair market value of Lavery's identifiable assets, with an average remaining useful life of six years, exceeded book value by \$80 million.
- The remainder of the excess of the carrying amount of investment over the book value of net assets purchased was attributable to goodwill.

Required

- Prepare all appropriate journal entries related to the investment during 2006, assuming Ridgway accounts for the investment by the equity method.
- Prepare the journal entries required by Ridgway, assuming that the 10 million shares represents a 30% interest in the net assets of Lavery rather than a 30% interest.

P 12-8

Equity method

Northwest Paperboard Company, a paper and allied products manufacturer, was seeking to purchase a plant in Canada. To fund this end, the company bought 40% of the outstanding common shares of Vancouver Paper and Milling, Inc. on January 1, 2006, for \$400 million.

At the date of purchase, the book value of Vancouver's net assets was \$775 million. The book value of fair values for all balance sheet items were the same except for inventory and plant facilities. The fair value exceeded book value by \$5 million for the inventory and by \$20 million for the plant facilities.

The estimated useful life of the plant facilities is 10 years. All inventory acquired was sold during the year. Vancouver reported net income of \$40 million for the year ended December 31, 2006. Vancouver paid a cash dividend of \$30 million.

Required

- Prepare all appropriate journal entries related to the investment during 2006.
- What amount should Northwest report as its investment in Vancouver for the year ended December 31, 2006?
- What amount should Northwest report in its balance sheet as its investment in Vancouver?
- What should Northwest report in its statement of cash flows regarding its investment in Vancouver?

P 12-9

Equity method

On January 1, 2006, Miller Properties paid \$9 million for 1 million shares of Marion Company's 4 million outstanding common shares. Miller's CEO became a member of Marion's board of directors during the quarter of 2006.

The carrying amount of the Marion's net assets was \$60 million. Miller estimated the fair value of the net assets to be the same except for a patent valued at \$24 million over cost. The remaining useful life of the patent is 10 years.

P 12-10

Equity method

The carrying amount of the Marion's net assets was \$60 million. Miller estimated the fair value of the net assets to be the same except for a patent valued at \$24 million over cost. The remaining useful life of the patent is 10 years.

Markon reported earnings of \$12 million and paid dividends of \$6 million during 2006. On December 31, 2006, Markon's common stock was trading on the NYSE at \$33.50 per share.

Required:

- When considering whether to act with or for its investment in Markon under the equity method, what criteria should Miller's management apply?
- Assume Miller accounts for its investment in Markon using the equity method. Ignoring income taxes, determine the amounts related to the investment to be reported in its 2006:

- The 2006 statement of income.
- The 2006 statement of equity.
- The 2006 statement of cash flows.

Problem 20-10 Reporting Investments
Indicate whether the accounting of the investment below must likely should be accounted for based on the classification rules used.

Problem 20-10

| Item | Reporting Category |
|--|---------------------------------|
| 1. 35% of the nonvoting preferred stock of American Aircraft Company | T Trading securities |
| 2. Treasury bills to be held to maturity | M Securities held-to-maturity |
| 3. Two-year note receivable from affiliate | A Securities available-for-sale |
| 4. Accounts receivable | E Equity method |
| 5. Treasury note maturing in one week | C Cash/cash equivalents |
| 6. Common stock held in trading account for immediate resale | N None of these |
| 7. Bonds acquired to profit from short-term differences in price | |
| 8. 35% of the voting common stock of Computer Storage Devices Company | |
| 9. 90% of the voting common stock of Affiliated Peripherals, Inc. | |
| 10. Corporate bonds of Primary Banking Company to be sold if interest rates fall 4% | |
| 11. 25% of the voting common stock of Smith Foundries Corporation, a 75% family-owned company. All value determinable. | |
| 12. 7% of the voting common stock of Shipping Barrels Corporation, a 93% family-owned company. All value determinable. | |

At January 1, 2009, Reichschild Chair Company, Inc. was indebted to First Lincoln Bank under a \$20 million, 9% secured note. The note was signed January 1, 2009 and was due December 31, 2009. Annual interest was paid prior on December 31, 2008. Reichschild Chair Company was experiencing severe financial difficulties and negotiated a restructuring of the terms of the debt agreement.

Required:

Prepare the journal entries by First Lincoln Bank to record the restructuring and any remaining transactions relating to the debt under each of the independent circumstances below.

- First Lincoln Bank agreed to settle the debt in exchange for assets having a fair market value of \$16 million but carried on Reichschild's four company books at \$13 million.
- First Lincoln Bank agreed to (a) forgive the interest accrued from last year, (b) reduce the remaining loan interest payments to \$1 million each, and (c) reduce the principal to \$15 million.
- First Lincoln Bank agreed to defer all payments (including accrued interest) until the maturity date and accept \$17,775,000 at that time as settlement of the debt.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Case 20-1
Investments

The following disclosure note appeared in the 2008 annual report of the Sprint Corporation.

10

Investments in Equity Securities (in part)

The cost of investment in marketable equity securities, on the purchase of Equity in different tranches, was \$90 million and \$10 million of the original \$100 million, respectively. As of 2014, the balance in this group of investments was \$20 million. In 2014, the company sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement.

As of 2014, the balance in this group of investments was \$20 million. In 2014, the company sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement.

In 2014, the company sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement. The company also sold 1 million shares of Equity in the open market and the gain was not recognized in the income statement.

Required:

- From the information provided by the disclosure data, determine the amount at which Sprint reported its investment in Earthlink common stock on its 2014 balance sheet.
- What would have been Sprint's journal entry to reflect the 2014 fair value of the investment? (Note: The case indicates that Sprint sold one million shares, producing a \$14.8 million gain. Does this mean that the securities involved had not previously been adjusted to fair value? Why? What would have been the journal entry to record the sale of the one million shares in 2014 if we assume that 1 million of the gain pertained to those shares and that Sprint used the average cost method to determine the cost of the shares sold.)

Investments in common stock potentially affect each of the various financial statements as well as the disclosure notes that accompany these statements.

Required:

- Locate a recent annual report of a public company that includes a disclosure that describes an investment in securities available-for-sale. You can use EdgarScan at edgarscan.proxylib.com.
- Under what caption are the investments reported in the comparative balance sheets? Are they listed as investments in equity securities?
- Are unrealized gains or losses reported in the comparative income statements?
- Are unrealized gains or losses reported in the comparative statement of shareholders' equity?
- Are unrealized gains or losses reported in the comparative balance sheet? If so, under what caption? What are unrealized gains or losses reported here, other than in the income statement?
- Are cash flows from the sale of these investments reported in the company's comparative statements of cash flows? If so, what information is provided in this disclosure?
- Does the disclosure provide information that is relevant to the financial statements?

In Chapter 4, you learned that new changes in accounting principle require retrospective application. A new method of accounting for the balance sheet of a company is required by new FASB accounting principles. An example of this exception is FASB 159, which requires that investments in debt and equity securities be reported at fair value. The standard requires that investments that previously were reported at historical cost be reported at fair value. The new standard requires that investments be reported at fair value.

Required:

- Locate the FASB 159 standard and read the general method of accounting for investments in equity securities.

The following textbook case is recommended to use with this chapter. The case provides an excellent opportunity for class discussion of group projects or writing assignments. The case, along with the other cases, is available from the textbook Foundation of its website at www.foundationof.com.

Case: 83-10: *Prattair, Inc.*

This case gives students an opportunity to discuss whether and how the equity method should be applied to preferred stock investments.

Reporting securities available for sale under and properly evaluate an annual report.

• 10.12

integrating case 12. How was the adoption of FAS 159 an exception to the usual method of accounting for changes in accounting principle?

• 10.12.1

Textbook Accounting Equity Method

• 10.12

Renault is the largest automobile manufacturer in France. The investment disclosures accompanying financial statements in Renault's 2003 annual report are reproduced below.

Accounting Policies (in part)

A. Securities

Equity securities

Equity investments in other companies are carried in the balance sheet at acquisition cost. Dividends and participating dividends are recorded in the year of distribution.

When an impairment has been identified, the value in use of the investment is below acquisition cost, the impairment is recorded on the basis of probability prospects, the company's share in the investment, the value of the group and the share in net assets.

Debt securities

Debt securities are classified as either securities acquired to be held on a long-term basis or securities acquired to be sold. Securities held on a long-term basis are classified as debt securities. Securities held on a long-term basis are classified as debt securities. Securities held on a long-term basis are classified as debt securities.

When a debt security is held on a long-term basis, the company's share in the investment is below acquisition cost, the impairment is recorded on the basis of probability prospects, the company's share in the investment, the value of the group and the share in net assets.

Marketable securities

Marketable securities are classified as either securities acquired to be held on a long-term basis or securities acquired to be sold. Securities held on a long-term basis are classified as debt securities. Securities held on a long-term basis are classified as debt securities.

Required

On the basis of the information the disclosures provide, compare accounting for investments in France with that in the United States.

All publicly traded domestic companies use EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, to make the majority of their filings with the SEC. You can access EDGAR on the Internet at www.edgar.gov or you can use Edgar's on at edgarsoft.privatelink.com.

Required

Select five public companies with which you are familiar. Access its most recent 10-K filing. Search or scroll to find financial statements and related notes.

2. Answer the following questions. If the chosen company does not report investments in the securities of other companies, choose another company.

- What is the amount and classification of any investments reported in the balance sheet? Are unrealized gains or losses reported in the shareholders' equity section?
- Are any investments reported in the equity method?
- What amounts from these investments are reported in the comparative income statements? How are they reported (income increased or decreased over the years reported)?
- Are any acquisitions or disposals of investments reported in the statement of cash flows?

Corporations frequently invest in securities issued by other corporations. Some investments are acquired to secure a favorable business relationship with another company. On the other hand, others are intended only to earn an investment return from the dividends or interest the securities pay or from increases in the market prices of the securities—the same motivations that might cause you to invest in stocks, bonds, or other securities. This diversity in investment objectives means no single accounting method is adequate to report every investment.

10-K filing for Renault is available at www.edgar.gov. Access the most recent financial statements of Renault using Edgar's on edgarsoft.privatelink.com.

Required

- What is the amount and classification of any investment securities reported on the balance sheet? In which current and noncurrent asset categories are investments reported by Renault? What criteria are used to determine the classification?
- How are unrealized gains or losses reported? (Unrealized gains and losses?) Are any investments reported by the equity method?
- What amounts from these investments are reported in the comparative income statements?
- Are cash flow effects of these investments reflected in the company's comparative statements of cash flows? If so, what information is provided by this disclosure?

Specific tasks in the simulation apply:

- Analyzing various transactions involving investment securities and determining their appropriate balance sheet classification.
- Applying judgment in the application of the equity method.
- Determining the amount of interest expense to be reported from a debt investment.
- Demonstrating an understanding of comprehensive income and how it is affected by investments in securities.
- Communicating the way we account for investments using the equity method.
- Researching the financial reporting ramifications of changing the classification of investment securities.

13

CHAPTER

Current Liabilities and Contingencies

LEARNING OBJECTIVES

After studying this chapter you should be able to:

- ★ O1 Identify liabilities and distinguish between current and long-term liabilities
- ★ O2 Account for the issuance and payment of various forms of notes and record the interest on the notes
- ★ O3 Characterize accrued liabilities and liabilities from advance collection and describe when and how they should be recorded
- ★ O4 Determine when a liability can be classified as a non-current obligation
- ★ O5 Identify situations that constitute contingencies and the circumstances under which they should be recorded
- ★ O6 Demonstrate the appropriate accounting treatment for contingencies, including unasserted claims and attachments

FINANCIAL REPORTING CASE



Dinstuhl's Dad

"My dad is confused. Your friend Buzz Dinstuhl proclaimed at the office one morning. You see, we're competing against each other in that investment game I told you about, and one of his hot investments is Symtel Microsystems. When he got their annual report yesterday afternoon, he started analyzing it, you know, really studying closely. Then he asked me about this part here." Buzz pointed to the current liability section of the balance sheet and related disclosure.

SYNTEL MICROSYSTEMS, INC.
Current Sheet
December 31, 2006 and 2005
(in millions)

| Current liabilities | 2006 | 2005 |
|-----------------------------------|---------|---------|
| Accounts payable | \$ 13.5 | \$ 11.1 |
| Short-term borrowings (Note 3) | 87.0 | 176.3 |
| Accrued liabilities | 65.3 | 112.1 |
| Accrued loss contingency | 76.8 | — |
| Other current liabilities | 14.0 | 15.2 |
| Current portion of long-term debt | 44.1 | 40.3 |
| Current liabilities | \$641.4 | \$402 |

Note 3: Short-Term Borrowings (in part)

The components of short-term borrowings and their respective weighted average interest rates at the end of the period are as follows:

\$ in millions

| | 2006 | | 2005 | |
|--|---------|-----------------------|---------|-----------------------|
| | Amount | Average Interest Rate | Amount | Average Interest Rate |
| Commercial paper | \$ 14.0 | 5.2% | \$ 27.1 | 5.3% |
| Bank loans | 5 | 5.5 | 27.7 | 0 |
| Amount reclassified to long-term liabilities | (85.0) | — | (78.0) | — |
| Total short-term borrowings | \$ 18.7 | | \$ 76.8 | |

The Company maintains bank credit lines sufficient to cover outstanding short-term borrowings. As of December 31, 2006, the Company had \$205 million in committed lines available.

At December 31, 2006 and 2005, the Company classified \$65.0 million and \$78.0 million, respectively, of commercial paper and bank notes as long-term debt. The Company has the intent and ability, through formal renewal agreements, to reclassify these obligations into future periods.

(continued)

Note: Contingencies for north

[illegible]

250

- What are the most typical test values as a 20-year-old person? (page 617)
- Why do typical muscle systems steadily receive stimulation from the central nervous system? (page 622)
- Did they also report some unusual symptoms as they grew old? Explain. (page 627)
- Must diabetics be aware that an insulin injection requires a stabilised? (page 626)
- What are the most typical test values as a 20-year-old person? (page 617)

1990 年 5 月 1 日

Before a business can invest in an asset, it first must acquire the money to pay for it. This can happen in either of two ways—funds can be provided by owners or the funds must be borrowed. You may recognize this as a description of the basic accounting equation. Liabilities and owners' equity on the right-hand side of the equation represent the two basic sources of the assets on the left-hand side. You studied assets in the chapters leading to this one and you will study owners' equity later. This chapter and the next four describe the various liabilities that constitute creditors' claims on a company's assets.

49. $\frac{1}{2} \ln 2$

You already know what liabilities are. You encounter them every day. The multibillion dollar national debt we hear discussed almost daily is a liability of all of us. Our creditors are the individuals and institutions that have bought debt securities from (loaned money to) our government. Similarly, when businesses issue notes and bonds, their creditors are the banks, individuals, and organizations that exchange cash for those securities. If you are paying for a car or a home with monthly payments, you have a personal liability. Each of these obligations represents the most common type of liability—one to be

Entities routinely receive liabilities in exchange for funds, goods and services they need to operate and we are routinely liable for the liabilities they incur.

due in cash and for which the amount and timing are specified by a legally enforceable contract.

However, to be reported as a liability, an obligation need not be payable in cash. Instead, it may require the company to transfer other assets or to provide services. It also need not be enforceable by a written agreement, but be implied by law. Even an oral agreement, if enforceable, need not be disclosed, although it would be shown in the reporting perspective as a liability. Three essential characteristics of liabilities are:

1. Are *probable*, future sacrifices of economic benefits
2. Arise from *present* obligations (to transfer goods or provide services) to other entities.
3. Result from *past* transactions or events.¹

Notice that the definition of a liability involves the present, the future, and the past. It is a contract or obligation to sacrifice assets in the future because of a transaction or other event that already has happened.

Later in the chapter we will discuss several liabilities that possess these characteristics but have elements of uncertainty regarding the amount and timing of payments and sometimes their existence.

Some liabilities are not obligations.

LO1

What Is a Current Liability?

On a classified balance sheet, liabilities are categorized as either current liabilities or long-term liabilities. Listing financial statement elements by classification provides additional information about the nature of those elements. In the case of liabilities, the classification is useful in predicting the classification impact to their respective business. Will payment of the use of current assets and reduce the amount of liquid funds available for other uses?² Are sufficient liquid funds available to pay currently maturing obligations in addition to current operating needs? Or is the due date comfortably in the future, permitting cash to be used for other purposes without risking default or without compromising operating efficiency? Classifying liabilities as either current or long term helps investors and lenders assess the riskiness of a business's obligations in this regard. In this chapter, we focus on current liabilities. The next three chapters address liabilities classified as long term.

A general, but not precise, definition of current liabilities is provided within one year or within one operating cycle, whichever is longer. This general definition usually applies. However, a more discriminating definition identifies current liabilities as those expected to be satisfied with *current assets* or by the creation of other *current liabilities*.³

Accounting for liabilities discussed in this chapter, you should be aware that a practical concern usually affects the way current liabilities are reported on the balance sheet. Current liabilities should be recorded at their present values. In other words, the amount recorded is the present value of all anticipated future cash payments resulting from the debt (currently, principal and interest payments). This is due to the time value of money.⁴ However, in practice, liabilities payable within one year ordinarily are recorded instead at their *face amounts*.⁵ The inconsistency usually is inconsequential because the relatively short maturity of current liabilities makes the interest or time value component immaterial.

By most accounting obligations reported as current liabilities are accounts payable, notes payable, commercial paper, income tax liability, accrued liabilities, and contingencies. Liabilities related to income taxes are the subject of Chapter 16. We discuss the others here.

Now we examine specific current liabilities. Let's use the current liability section of the balance sheet of General Mills, Inc., and related disclosure notes to overview the chapter and provide perspective on the liabilities we discuss (Graphic 13-1).

| General Mills, Inc. Balance Sheet (Partial) | | General Mills, Inc. Balance Sheet (Partial) | | General Mills, Inc. Balance Sheet (Partial) | |
|---|---------|---|---------|---|---------|
| 2013 | 2012 | 2013 | 2012 | 2013 | 2012 |
| Accounts payable | \$1,000 | Accounts payable | \$1,000 | Accounts payable | \$1,000 |
| Notes payable | 500 | Notes payable | 500 | Notes payable | 500 |
| Commercial paper | 200 | Commercial paper | 200 | Commercial paper | 200 |
| Income tax liability | 100 | Income tax liability | 100 | Income tax liability | 100 |
| Accrued liabilities | 300 | Accrued liabilities | 300 | Accrued liabilities | 300 |
| Contingencies | 100 | Contingencies | 100 | Contingencies | 100 |
| Total | \$2,200 | Total | \$2,200 | Total | \$2,200 |

GRAPHIC 13-1
Current liabilities—
General Mills

As shown in the table, the current liabilities of General Mills are composed of accounts payable, notes payable, and other current liabilities. The total current liabilities are \$3,444 million.

As shown in the table, the current liabilities of General Mills are composed of accounts payable, notes payable, and other current liabilities. The total current liabilities are \$3,444 million.

Buying merchandise on credit is the primary reason for accounts payable.

GENERAL MILLS, INC.
Excerpt from Balance Sheet (in millions)
May 30, 2004 and May 25, 2003

| Liabilities | | |
|---------------------------|---------|---------|
| Current liabilities | 2004 | 2003 |
| Accounts payable | \$ 47 | \$ 203 |
| Notes payable | 239 | 105 |
| Other current liabilities | 589 | 1,236 |
| Total current liabilities | \$2,575 | \$3,444 |

8 Notes Payable

The company's notes payable are reported with their weighted average interest rate at the end of the reporting period.

| | 2004 | | 2003 | |
|-----------------------------------|--------------|--------------------------------|--------------|--------------------------------|
| (Dollars in millions) | Note Payable | Weighted Average Interest Rate | Note Payable | Weighted Average Interest Rate |
| U.S. government paper | \$141 | 2% | \$ 475 | 5% |
| Canadian commercial paper | 159 | 2 | 18 | — |
| Bank commercial paper | 194 | 4 | 527 | 5 |
| Financial institutions | 234 | 6.7 | 366 | 4 |
| Amount borrowed in long-term debt | 1750 | | 100 | |
| Total notes payable | \$587 | | \$ 276 | |

General Mills' notes payable are reported with their weighted average interest rate at the end of the reporting period. As of May 30, 2004, the company's notes payable are composed of U.S. government paper, Canadian commercial paper, bank commercial paper, and financial institutions. The total notes payable are \$587 million. The weighted average interest rate for the notes payable is 4.7%.

You may want to refer back to portions of Graphic 13-1 as corresponding liabilities are described later in the chapter. We discuss accounts payable and notes payable first.

Open Accounts and Notes

Many businesses buy merchandise or supplies on credit. Most also find it desirable to receive cash from time to time to finance their activities. In this section we discuss the methods these borrowing activities create: namely, trade accounts and trade notes, bank loans, and commercial paper.

ACCOUNTS PAYABLE AND TRADE NOTES PAYABLE

Accounts payable are the claims of suppliers of merchandise or services purchased on credit. Most accounts payable are open accounts. This means that the business has no credit instrument to deliver. Because the time until payment usually is short (30, 45, or 60 days), these liabilities typically are non-interest-bearing and are reported at the face amounts. As shown in Graphic 13-1, General Mills's largest current liability is \$3,444

accounts payable, \$2.45 million. The key accounting considerations relating to accounts payable are determining their existence and ensuring that they are recorded in the appropriate accounting period. You studied these issues and learned how cash discounts are handled during your study of inventories in Chapter 8.

Accounts payable, another form of current liability, is usually recognized by a firm in the same period that it receives the goods or services that it owes. Accounts payable sometimes bear interest.

About 30% of general Mills' current liabilities are in the form of trade payables.

SHORT-TERM NOTES PAYABLE

The first condition was for a corporation to obtain temporary financing by arranging a short-term bank loan. When a company borrows cash from a bank and signs a promissory note (usually an IOU), the firm's liability is reported as *notes payable* (sometimes *bank loans* or *short-term borrowings*). About two-thirds of bank loans are short-term, but because many are renewably renewed, some tend to resemble long-term debt. In fact, in some cases we report such as long-term financing, as you'll see later in the chapter.

Very often, smaller firms are unable to tap into the major sources of long-term financing. If necessary to provide for their capital needs, they must rely heavily on short-term financing. Even large companies typically utilize short-term debt as a significant and desirable component of their capital structure. One reason is that short-term funds generally offer lower interest rates than long-term debt. Perhaps most importantly, corporations value flexibility. As a rule, managers want as many financing alternatives as possible.

Credit Lines. Usually short-term bank loans are arranged under an existing line of credit with a bank or group of banks. These can be noncommitted or committed lines of credit. A noncommitted line of credit is an informal agreement that allows a company to borrow up to a prearranged limit without having to follow formal loan procedures and paperwork. Banks sometimes require the company to maintain a compensating balance on deposit with the bank, say, 5% of the line of credit.⁴ The 2004 annual report of **Kerr-McGee Corporation** illustrates a noncommitted type of credit (Graphic 13-2).

A noncommitted line of credit allows a company to borrow up to a prearranged limit without having to follow formal loan procedures.

Note 9: Debt (in part)

A noncommitted line of credit, also called a "revolving line of credit and revolving credit facility," allows the company to borrow up to a prearranged limit without having to follow formal loan procedures and paperwork. Banks sometimes require the company to maintain a compensating balance on deposit with the bank, say, 5% of the line of credit.⁴ The 2004 annual report of **Kerr-McGee Corporation** illustrates a noncommitted type of credit (Graphic 13-2).

Graphic 13-2

Disclosure of Credit Lines—Kerr-McGee Corporation

A committed line of credit is a more formal agreement that usually requires the firm to pay a commitment fee to the bank. A typical annual commitment fee is 4% of the total committed funds. Banks often require smaller firms to keep compensating balances in the bank. Disclosure note in the 2004 annual report of the **Walgreen Co.** describes a committed line of credit as shown in Graphic 13-3.

A committed line of credit typically requires the firm to pay a commitment fee, usually 4% of the total committed funds, and to maintain a compensating balance.

Short-Term Borrowings (in part)

In 2004, the company had a syndicated bank line of credit for up to \$100 million. The company has a term commitment to maintain a compensating balance on deposit with the lending bank to keep this line of credit facility active.

Graphic 13-3

Disclosure of Committed Line of Credit—Walgreen Company

General Mills also discloses notes that we looked at in Figure 13-3. It states that the company has both noncommitted and committed lines of credit.

General Mills also discloses notes that we looked at in Figure 13-3. It states that the company has both noncommitted and committed lines of credit.



Interest. When a company borrows money, it pays the lender interest in return for using the lender's money during the term of the loan. You might think of the interest as the "rent" paid for using money. Interest is stated in terms of a percentage rate to be applied to the face amount of the loan. Because the stated rate typically is an annual rate, when calculating interest on a short-term note we must convert the percentage of the annual period the loan spans. Interest on notes is calculated as:

$$\text{Face amount} \times \text{Annual rate} \times \text{Time to maturity}$$

This is demonstrated in Illustration 13-1.

Illustration 13-1 Note Issued for Cash

LO2

On May 1, Affiliated Technologies, Inc., a consumer electronics firm, borrowed \$700,000 cash from First Bank Corp. under a noninterest short-term line of credit arrangement and issued a 12% annual interest promissory note. Interest was payable at maturity.

May 1

| | | |
|---------------|---------|---------|
| Cash | 700,000 | |
| Notes payable | | 700,000 |

November 1

| | | |
|------------------------------------|--------|---------|
| Interest expense (\$700,000 × 12%) | 42,000 | |
| Notes payable | | 700,000 |
| Cash (\$700,000 + 42,000) | | 742,000 |

Sometimes a bank loan assumes the form of a so-called noninterest-bearing note. Obviously, though, no bank will lend money without interest. Noninterest-bearing means that no interest is paid by the borrower, but the interest is deducted or discounted from the face amount to determine the cash proceeds made available to the borrower at the outset. For example, the preceding note would be packaged as a \$700,000 noninterest-bearing note, with a 12% discount rate. In that case, the \$42,000 interest would be discounted at the outset, rather than explicitly stated.⁷

May 1

| | | |
|--|---------|---------|
| Cash (difference) | 658,000 | |
| Discount on notes payable (\$700,000 × 6%) | | 42,000 |
| Notes payable (face amount) | | 700,000 |

November 1

| | | |
|-----------------------------|--------|---------|
| Interest expense | 42,000 | |
| Discount on notes payable | | 42,000 |
| Notes payable (face amount) | | 700,000 |
| Cash | | 742,000 |

Notice that the amount borrowed under this arrangement is only \$658,000, but the interest is calculated as the discount rate times the \$700,000 face amount. This causes the effective interest rate to be higher than the 12% stated rate:

$$\frac{\$42,000 \text{ interest for 6 months}}{\$658,000 \text{ Amount borrowed}} = 6.38\% \text{ Rate for 6 months}$$

The bank will calculate the discount rate to reduce the net amount available to the borrower to the amount of the loan. The bank will calculate the discount rate to reduce the net amount available to the borrower to the amount of the loan.

May

| | | |
|---------------------------|---------|--------|
| Cash | 658,000 | |
| Discount on notes payable | | 42,000 |

November 1

| | | |
|---|--------|---------|
| Interest expense (\$700,000 × 12% × 6/12) | 42,000 | |
| Notes payable | | 700,000 |

Turnsize

$$6.8\% \times 2/6 = 12.76\% \text{ Effective interest rate}$$

We studied short-term notes from the perspective of the lender (note receivable) in Chapter 7.

Secured Loans. Sometimes short-term loans are *secured*, meaning a specified asset of the borrower is pledged as collateral or security for the loan. Although many kinds of assets can be pledged, the secured loans most frequently encountered in practice are secured by inventory and accounts receivable. For example, Collins Industries, Inc., which sells vehicle chassis to major vehicle manufacturers, disclosed the secured notes described in Graphic 13-4.

Inventory or accounts receivable often are pledged as security for short-term loans.

Notes & Chassis Floorplan Notes Payable (In part)

Collins Industries, Inc. notes are payable to a lending institution. The chassis manufacturer. These notes are secured by the chassis and floorplans and are payable over the term of the date the company sells the chassis. A 30-day note at the rate of 6.8%.

GRAPHIC 13-4

Disclosure of Notes Secured by Inventory—Collins Industries, Inc.

When the notes receivable serve as collateral, we refer to the arrangement as *pledging* accounts receivable. Sometimes, the receivables actually are sold outright to a finance company as a means of short-term financing. This is called *factoring* receivables.⁴

COMMERCIAL PAPER

Large corporations obtain temporary financing by issuing commercial paper. If a company, as other companies do, issues term commercial paper, it is to use the notes sold in the market. Commercial paper is sold in denominations of \$25,000, with maturities ranging from 30 to 270 days (beyond 270 days the firm would be required to file a registration statement with the SEC). Interest often is discounted at the issuance of the note. Usually commercial paper is sold directly to the buyer (lender) and is backed by a line of credit with a bank (see the footnote disclosure note in Graphic 13-3). This allows the interest rate to be lower than a bank loan. Commercial paper has become an increasingly popular way for large companies to raise funds; the total amount having expanded over fivefold in the last decade.

Large, highly rated firms can obtain commercial paper at a lower rate than a bank loan.

FINANCIAL REPORTING CASE

On p. 612

PERSPECTIVE

The financial market is becoming increasingly multinational. World markets have grown dramatically in the last decade. The commercial unification of European countries, the introduction of the Euro, and the fall of communism in portions of Europe and Asia are both causes and symptoms of the heightened globalization of the capital marketplace. Companies wishing to reduce their exposure to risk and to widen their sources of funding are taking advantage of the broader opportunities the global environment provides. Increasingly, U.S. corporate debt is displaying a multinational dimension, with a percent of financial position often reporting short-term to intermediate-term loans in a different currency. Loans from foreign banks that are denominated in dollars are called Eurodollar loans. Also, foreign loans frequently are denominated in the currency of the lender (Swiss franc, Euro, and so on). When loans must be repaid in foreign currencies a new kind of risk is introduced. This is because of exchange rates change, the number of dollars representing the foreign currency that must be repaid differs from the number of dollars representing the foreign currency borrowed. We discuss hedging against this risk exposure in previous chapters and in Appendix A at the back of the book.⁵

Companies often have to borrow money in foreign currencies.

⁴ Factoring is a financing arrangement in which the lender (factoring company) purchases the receivables from the company. The factoring company then bills the customers for the receivables. The factoring company also provides credit insurance for the receivables. The factoring company also provides credit insurance for the receivables.

The name *commercial paper* refers to the fact that a paper certificate traditionally is issued to the lender to signify the obligation, although there is a trend toward total computerization of paper sold directly to the lender so that no paper is created. Since commercial paper is a form of notes payable, recording its issuance and payment is exactly the same as our earlier illustration.

In a statement of cash flows, the cash a company receives from using notes to borrow funds as well as the cash it uses to repay the notes are reported among cash flows from financing activities. Most of the other liabilities we study in this chapter are integrally related to a company's primary operations and thus are part of operating activities. We discuss long-term notes in the next chapter.

Accrued Liabilities

- **LO3** Accrued liabilities represent expenses already incurred but not yet paid. Accrued expenses (These liabilities are recorded by adjusting entries at the end of the reporting period, prior to preparing financial statements.) You learn how to record accrued liabilities in your study of introductory accounting, and you reinforce your understanding in Chapter 2. Common examples are salaries and wages payable, income taxes payable, and interest payable.

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ACCRUED INTEREST PAYABLE

Accrued interest payable arises in connection with notes like those discussed earlier in this chapter (as well as other forms of debt). For example, in continue Illustration 13-1, let's assume the fiscal period for Affiliated Technologies ends on June 30, two months after the 9-month note is issued. The issuance of the note, intervening adjusting entry, and note payment would be recorded as shown in Illustration 13-1A.

Illustration 13-1A

Note with Accrued Interest

1. On May 1, Affiliated Technologies issues a 9-month, \$700,000 note with an annual interest rate of 2% to the bank. The note is due on February 1, 2014. The company's fiscal year ends on June 30, 2013.

Issuance of Note on May 1

| | | |
|---------------|---------|---------|
| Cash | 700,000 | |
| Notes payable | | 700,000 |

Accrual of Interest on June 30

| | | |
|--|-------|-------|
| Interest expense (\$700,000 × 2% × 2/12) | 2,333 | |
| Interest payable | | 2,333 |

Note Payment on November 1

| | | |
|--|---------|---------|
| Interest expense (\$700,000 × 2% × 4/12) | 4,667 | |
| Interest payable (from adjusting entry) | 2,333 | |
| Notes payable | 700,000 | |
| Cash (\$700,000 + 4,667 + 2,333) | | 707,000 |

SALARIES, COMMISSIONS, AND BONUSES

Compensation for employee services can be in the form of hourly wages, salary, commissions, bonuses, stock compensation plans, or pensions.³⁰ Accrued liabilities arise in connection with compensation expense when employee services have been performed as of financial statement date but employees have yet to be paid. These accrued expenses/liabilities are recorded by adjusting entries at the end of the reporting period, prior to preparing financial statements.

Vacations, Sick Days, and Other Paid Future Absences. Suppose a firm gives two weeks of paid vacation each year to nonsalaried employees. Some take their vacation during the year earned and are compensated then. Some wait. Is the compensation an expense during the year earned for only those who actually are paid that year for their vacation? When you recall what you've learned about accrual accounting, you probably can think of other ways.

³⁰Pensions are discussed in Chapter 17, and stock-based compensation plans are discussed in Chapter 18.

An employer should accrue an expense and the related liability for employees' compensation for future absences (such as vacation pay) if the obligation meets four conditions. These conditions, all of which must be met for accrual, are listed in Graphic 13-5.

1. The obligation is attributable to employees' services already rendered.
2. The paid absence is attributable to a employee's right to receive compensation for future absences.
3. The amount of the obligation can be reasonably estimated.

GRAPHIC 13-5

Conditions for Accrual of Paid Future Absences

If these conditions look familiar, it's because they are simply the characteristics of a liability we discussed earlier, adapted to relate to a potential obligation for future absences of employees. Also, be sure to recognize the consistency of these conditions with accruing loss contingencies only when the obligation is both (a) probable and (b) can be reasonably estimated. The situation is demonstrated in Illustration 13-2.

Clashberry Chemicals has 8,000 employees. Each employee earns two weeks of paid vacation per year. Vacation not taken in the year earned can be carried over to subsequent years. In 2006, 500 employees took both weeks vacation at the end of the year. Employees had vacation time carryovers as follows:

| Employees | Vacation Weeks Earned but Not Taken | Total Carryover Weeks |
|-----------|-------------------------------------|-----------------------|
| 100 | 0 | 0 |
| 100 | 1 | 2,000 |
| 3,500 | 2 | 7,000 |
| 5,000 | | 9,000 |

In 2006, compensation averaged \$600 a week for all employees.

When Vacations Were Taken in 2006

| | |
|--|-----------|
| vacation wages expense (8,000 employees × 2 wks × \$600) | |
| 1 wk = \$600 | |
| | 4,200,000 |
| credit: wages payable | 4,200,000 |

December 31, 2006 (adjusting entry)

| | |
|--|-----------|
| debit: wages expense (9,000 carryover weeks × \$600) | 5,400,000 |
| liability: compensated future absences | 5,400,000 |

The liability for paid absences usually is accrued at the existing wage rate rather than at a rate expected to be in effect when absences occur.¹⁰ So, if wage rates have risen, the difference between the accrual and the amount paid increases compensation expense next year. For example, let's assume all the carryover vacation time is taken in 2007 and the actual amount paid to employees is \$5,700,000.

When Year 2006 Vacations Are Taken in 2007

| | |
|--|-----------|
| debit: compensated future absences account (debit) | 5,400,000 |
| wages and wages expense difference | 300,000 |
| debit: wages and wages payable given | 5,700,000 |

When the actual wage rate is higher than the rate used for the accrual, the difference between the accrual and the amount paid increases compensation expense next year.

¹⁰ If a company has a policy of adjusting the wage rate given to employees for inflation, then the amount paid to employees for future absences will be based on the actual wage rate given to employees.

Company policy and actual practice should be considered when deciding whether the rights to payment for absences have been earned by services already rendered. Consider an illustrative situation. Suppose scientists in a private laboratory are eligible for paid sabbatical leave after five years. Suppose a liability is accrued at the end of a year if a scientist has not taken the sabbatical leave. Suppose the research benefits from the employee's leave. Then a practice of crediting that sabbatical leave to the employee's research benefits may be permitted absence for past service and other conditions are met.

Custom and practice also influence whether unused rights to paid absences ever may be earned forward. Obviously, if rights vest (payable even if employment is terminated), they have been earned. But having the right to leave maternity leave and any other leave not accumulated into a liability. These benefits usually vest at least for the wife. On the other hand, if it is customary that a particular paid absence, say holiday time, can be carried forward—if employees work on holidays, in this case—a liability is accrued. If it is probable that employees will be compensated in a future year.

Interestingly, sick pay quite often meets the conditions for accrual but is specifically excluded by FASB's Accounting for Accrued Absences. If an employee is paid for absences that are not due to illness, the employee is not entitled to sick pay. If the employee is paid for absences, the decision on whether to accrue nonvesting sick pay should be based on actual policy and practice. If company policy or custom is that employees are paid sick pay even when their absences are not due to illness, it is appropriate to record a liability for unused sick pay. For example, some companies require that unused sick pay benefits to be accumulated and paid at retirement (or to beneficiary if death comes before retirement). If each condition is met except that the company finds it impractical to reasonably estimate the amount of compensation for future absences, a disclosure note should describe the situation.

Annual Bonuses. Sometimes compensation packages include annual bonuses tied to performance when they are designed to motivate the executive. The most common measure of performance used is earnings per share. Some are also operating in one each being used to award a bonus to the executive. Bonuses and performance measures such as customer satisfaction and product or service quality, also are used by about 33% of these firms. In general, the more a company has been paying to its executives, the more likely it is to use the place of annual raises. This allows a company to increase employee pay without greatly lacking in the increases in salaries. Bonuses are compensation expense of the period they are earned.

Liabilities from Advance Collections

Liabilities are created when amounts are received that will be returned or restored to others. Deposits and advances from customers and collections for third parties are cases in point.

DEPOSITS AND ADVANCES FROM CUSTOMERS

Collecting cash from a customer as a refundable deposit or as an advance payment for products or services creates a liability to return the deposit or to supply the products or services.

Refundable Deposits. In some businesses it's typical to require customers to pay cash as a deposit that will be refunded when a specified event occurs. You probably have encountered such situations. When apartments are rented, security or damage deposits often are collected. Utility companies frequently collect deposits when service is begun. Some deposits sometimes are required on returnable containers, to be refunded when the containers are returned. The situation is demonstrated in Illustration 13-3.

Source: Adapted from "The Accounting for Accrued Absences," Working Paper 11, Wharton School, University of Pennsylvania (August 1993).

FASB's specifically excluded compensated absences (and accrued paid absences) under the definition provided in this statement. See also Statement of Financial Accounting Standards No. 101, FASB, 1985, par. 107.

Example: Chemical Company sells combustible chemicals in returnable reusable containers. Customers are charged a deposit for each container delivered and receive a refund when the container is returned. Deposits collected on containers delivered during the year were \$14,000. Deposits are forfeited if containers are not returned within one year. Ninety percent of the containers were returned within the allotted time. Deposits charged are twice the total cost of containers. The inventory of containers remains on the company's books until deposits are forfeited.

When Deposits Are Collected

| | | |
|---------------------------------|---------|---------|
| Assets—refundable deposits | 100,000 | |
| Liabilities—refundable deposits | | 300,000 |

When Containers Are Returned*

| | | |
|----------------------------|---------|---------|
| Assets—refundable deposits | 270,000 | |
| Assets | | 270,000 |

When Deposits Are Forfeited*

| | | |
|----------------------------|--------|--------|
| Assets—refundable deposits | 30,000 | |
| Revenue—sale of containers | | 30,000 |
| Cost of goods sold | 5,000 | |
| Inventory of containers | | 75,000 |

*As the deposit is forfeited, the company's liability is reduced. The deposit is not a liability until the deposit is forfeited. The deposit is a liability until the deposit is forfeited. The deposit is a liability until the deposit is forfeited.

ILLUSTRATION 13-3
Refundable Deposits

When a deposit is collected, the company's liability is increased. When a deposit is returned, the company's liability is decreased. When a deposit is forfeited, the company's liability is decreased.

Advances from Customers. At times, businesses require advance payments from customers that will be applied to the purchase price when goods are delivered or services provided. Gift certificates, magazine subscriptions, layaway deposits, special order deposits, and airline tickets are examples. These customer advances represent liabilities until the related product or service is provided. For instance, one of the largest liabilities reported by Time's Fitness Association, Inc., is deferred revenue from the sale of magazine subscriptions: \$4.3 million in 2014. Advances are demonstrated in Illustration 13-4.

Example: Tomorrow Publications' collectible magazine subscriptions for one year are sold. Subscription revenue is recognized over time. Tomorrow Publications' collectible magazine subscription sales during its first year of operations. At December 31, the average subscription was one month expired.

| | (\$ in millions) | |
|----------------------------------|------------------|----|
| When Advance Is Collected | | |
| Assets | 20 | |
| Unearned subscription revenue | | 20 |
| When Product Is Delivered | | |
| Unearned subscription revenue | 5 | |
| Subscription revenue | | 5 |

ILLUSTRATION 13-4
Customer Advances

When a subscription is sold, the company's liability is increased. When a subscription is delivered, the company's liability is decreased.

The New York Times Company described its recognition of revenue from newspaper subscriptions in the disclosure note shown in Graphic 13-6.

Note 3: Summary of Significant Accounting Policies (in part)

3. Revenue is recognized when the right to the product is transferred to the customer. Revenue is recognized when the right to the product is transferred to the customer.

GRAPHIC 13-6
Disclosure of Advances from Customers: The New York Times Company

Like refundable deposits, customer advances forfeited (for instance, gift certificates not redeemed) create revenue when they are deemed forfeited. Liability accounts produced by

customer deposits and advances are classified as current or long-term liabilities depending on when the obligation is expected to be satisfied.

COLLECTIONS FOR THIRD PARTIES

Companies often make collections for third parties from customers or from employees and periodically remit those amounts to the appropriate governmental or other units. Amounts collected this way represent liabilities until remitted.

An example is sales taxes. For illustration, assume a state sales tax rate of 4% and local sales tax rate of 3%. Adding the tax to a \$100 sale creates a \$7 liability until the tax is paid.

For example, if a retail store collects sales taxes from its customers, the amount collected represents a liability until it is remitted to the appropriate government agency.

A company's liability for sales taxes is a current liability because it is expected to be paid within the next year or operating cycle. The liability also represents liabilities until remitted.

| | | | |
|-------------------------------|---|-----|-----|
| Cash (a decrease, receivable) | | Dr. | |
| Sales revenue | | | 100 |
| Sales taxes payable (4% + 3%) | 7 | | |

Payroll-related deductions such as withholding taxes, Social Security taxes, employee insurance, employee contributions to retirement plans, and union dues also create current liabilities until the amounts collected are paid to appropriate parties. These payroll-related liabilities are explored further in the appendix to this chapter.

Although recorded in separate liability accounts, accrued liabilities usually are combined and reported under a single caption or perhaps two accrued liability captions in the balance sheet.

A Closer Look at the Current and Noncurrent Classification

- LO4 Given a choice, do you suppose management would prefer to report an obligation as a current liability or as a noncurrent liability? Other things being equal, most would choose a noncurrent classification. The reason is that in most settings outsiders (like banks, bondholders, and shareholders) consider debt that is payable currently to be riskier than debt that can not be paid for some time. Indeed, a long-term classification enables the company to portray higher working capital (current assets minus current liabilities) and a higher current ratio (current assets/current liabilities). Working capital and the current ratio often are explicitly restricted in loan contracts. As you study this section, you should view the classification choice from this perspective. That is, the question is not so much “What amount should be reported as a current liability?” but rather “What amount can be excluded from classification as a current liability?”

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The financial reporting process requires that companies disclose their long-term liabilities.

Long-term liabilities that are due on demand—by terms of the contract or violation of contract—should be classified as current liabilities.

CURRENT MATURITIES OF LONG-TERM DEBT

Long-term obligations (bonds, notes, lease liabilities, deferred tax liabilities) usually are classified and reported as current liabilities when they become payable within the upcoming year (or operating cycle, if longer than a year). For example, a 20-year bond issue is reported as a long-term liability for 19 years but normally is reported as a current liability on the balance sheet prepared during the 20th year of its term to maturity.¹⁸ General Mills reported \$1.1 billion of its long-term debt as a current liability in 2014 (see Graphic 13-1, page 614).

OBLIGATIONS CALLABLE BY THE CREDITOR

The requirement to classify currently maturing debt as a current liability includes debt that is *callable* (in other words, due on demand) by the creditor in the upcoming year (or operating cycle, if longer), even if the debt is not expected to be called. The current liability classification also is intended to include situations in which the creditor has the right to demand payment because an *existing violation* of a provision of the debt agreement makes it compulsory. Working capital has fallen below a contractual minimum. This also includes situations in which debt is not yet callable but will be callable within the year if an existing violation

¹⁸ Some exceptions do exist, especially for financial institutions.

is not corrected within a specified grace period (unless it's probable the violation will be corrected within the grace period or waived by the creditor).¹⁵

WHEN SHORT-TERM OBLIGATIONS ARE EXPECTED TO BE REFINANCED

Remember the 20-year bond issue we discussed earlier? Now, suppose we would reclassify 69 as a current liability on the balance sheet prepared during its 19th year. But suppose a second corporation has more specifically guaranteed the bond. When it matures, then we have only 19 years left on the 20-year maturity date, and a year into the next maturity date. Or do we have a 19-year maturity date to maturity? We ask these and the outward effect on the classification. The substance of the transaction supports a single even maturity, not a term obligation. The concept of substance over form requires the classification of obligations expected to be refinanced.

Short-term obligations (including the callable obligations we discussed in the previous section) that are expected to be refinanced on a long-term basis can be reported as noncurrent rather than current liabilities only if two conditions are met. The firm (1) must intend to refinance on a long-term basis and (2) must actually have the ability to do so. Ability to refinance on a long-term basis can be demonstrated by either an existing refinancing agreement or by actual financing prior to the issuance of the financial statements.¹⁶ An example will provide perspective (Illustration 13-5).

Frank Brothers Inc. had \$5 million of notes that mature in May 2007 and also had \$4 million of bonds issued in 1998 that mature in February 2007. In December 31, 2006, the company's fiscal year end, management intended to refinance both on a long-term basis.

In January 2007, the company issued \$4 million of 20-year bonds applying to principal and interest the balance in that maturity date on the March 1, 2007, date. The actual is due in the 2010 to avoid a payment. Frank Bros. negotiated a line of credit with a bank for up to \$5 million any time during 2007. By borrowing, the company will mature two years on the date of borrowing. Interest is at the prime rate plus 100 basis points, the rate.

December 31, 2006

| Classification | \$ in 000s |
|------------------------------|------------|
| Current Liabilities | |
| Notes payable | \$5,000 |
| Long-Term Liabilities | |
| Notes payable | \$7,000 |
| Bonds payable | 4,000 |

Management's ability to refinance the bonds on a long-term basis was demonstrated by the refinancing period. The substance of the transaction is demonstrated by a refinancing agreement. The remaining \$5 million must be reported as a current liability.

Highly variable rates often result in a basis for establishing interest rates on loans of credit.

If shares of stock had been issued to refinance the bonds in the illustration, the bonds still would be excluded from classification as a current liability. The specific form of the long-term refinancing (bonds, bank loans, equity securities) is irrelevant when determining the appropriate classification. Requiring companies to actually demonstrate the ability to refinance on a long-term basis in addition to merely intending to do so avoids intentional or unintentional understatement of current liabilities.

It's important to remember that several weeks usually pass between the end of a company's fiscal year and the date the financial statements for that year actually are issued.

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Short-term obligations are classified as current liabilities if the maturity date is within one year of the reporting date. If the maturity date is beyond one year, the obligation is classified as a long-term liability. The classification is based on the substance of the transaction, not the legal form. The classification is based on the ability to refinance on a long-term basis, not the intention to refinance. The classification is based on the actual refinancing, not the intention to refinance.

Illustration 13-5

Short-Term Obligations that Are Expected to Be Refinanced on a Long-Term Basis

¹⁵ If the violation is not corrected within the grace period, the creditor may declare the debt in default. If the violation is corrected within the grace period, the creditor may declare the debt in default if the violation is not corrected within the grace period. If the violation is corrected within the grace period, the creditor may declare the debt in default if the violation is not corrected within the grace period.

Events occurring during that period can be used to clarify the nature of financial statement elements at the reporting date. Here we consider refinancing agreements and actual securities transactions to support a company's ability to refinance on a long-term basis. Later in this chapter we use information that becomes available during this period to decide how contingencies are reported.

CONCEPT REVIEW EXERCISE

CURRENT LIABILITIES

The following selected transactions relate to liabilities of Southern Communications for the years 2006 and 2007. Southern's fiscal year ends on December 31.

Required

Prepare the appropriate journal entries for these transactions.

- 2006**
- July 1 Arranged an uncommitted short-term line of credit with First City Bank amounting to \$25,000,000 at the bank's prime rate (11.5% in July). The company will pay no commitment fees for this arrangement.
 - Aug. 9 Received a \$30,000 refundable deposit from a major customer for copper-lined mailing containers used to transport communications equipment.
 - Oct. 7 Received most of the mailing containers covered by the refundable deposit and a letter stating that the customer will retain containers represented by \$2,000 of the deposit and forgoes that amount. The cost of the forfeited containers was \$1,300.
 - Nov. 5 Borrowed \$7 million cash from First City Bank under the line of credit arranged in July and issued a nine-month promissory note. Interest at the prime rate of 12% was payable at maturity.
 - Dec. 31 Recorded appropriate adjusting entries for the liabilities described above.
- 2007**
- Feb. 12 Using the unused portion of the credit line as support, issued \$9 million of commercial paper and issued a six-month promissory note. Interest was discounted at discount rate of 10%.
 - Aug. 1 Paid the 12% note at maturity.
 - 12 Paid the commercial paper at maturity.

SOLUTION

2006

July 1

No entry is made for a line of credit, as it is not actually a loan. The existence and terms of the line would be described in a disclosure note.

August 9

| | | |
|-------------------------------|--------|--------|
| Cash | 30,000 | |
| Liability—refundable deposits | | 30,000 |

October 7

| | | |
|-------------------------------|--------|--------|
| Liability—refundable deposits | 30,000 | |
| Cash | | 28,000 |
| Revenue—sale of containers | | 2,000 |
| Cost of goods sold | 500 | |
| Inventory of containers | | 1,300 |

November 5

| | | |
|---------------|-----------|-----------|
| Cash | 7,000,000 | |
| Notes payable | | 7,000,000 |

December 31

| | | |
|-----------------------------------|---------|---------|
| Interest expense \$7,500,000 × 2% | 140,000 | |
| Interest payable | | 140,000 |

taxes for prior years, pending a year-end, for which the outcome will not be known until after the financial statements are issued. We must assess the likelihood that the company will pay the back taxes and if so, how much they will pay.

Note that the cause of the uncertainty must occur before the statement date. In this case, the prior years' operations for which the tax liability is questioned occurred before the current accounting period ended. Otherwise, regardless of the likelihood of the eventual outcome, no liability could have existed at the statement date. Recall that one of the essential characteristics of a liability is that it results "from past transactions or events."

Accounting standards require that the likelihood that the future event(s) will confirm an uncertainty of loss must be somewhat arbitrarily categorized as probable, reasonably possible, or remote.³

Probable—Confirming event is likely to occur. Remedies possible. The chance of a confirming event will occur is more than remote but less than likely.

Remote—The chance the confirming event will occur is slight.

Also key to reporting a contingent liability is its dollar amount. The amount of the potential loss is classified as either known, reasonably estimable, or not reasonably estimable. A liability is accrued if it is both probable that the confirming event will occur and the amount can be at least reasonably estimated. A general depiction of the accrual of a loss contingency is

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Likelihood that a liability exists

* Q4

Accrual of a Loss Contingency—Liability

| | | | |
|-------------------|-----------|---------|--------|
| LOSS (or expense) | Liability | UNKNOWN | AMOUNT |
|-------------------|-----------|---------|--------|

ADDITIONAL CONSIDERATION

If one amount within a range of possible loss appears better than other amounts within the range, that amount is accrued. When no amount within the range appears more likely than others, the minimum amount should be recorded and the possible additional loss should be disclosed.⁴

In a recent annual report (Graphic 13-8), Union Pacific reported a loss contingency liability accrued for a claim against it by government agencies for which the company deemed payment was both probable and reasonably estimable.

GRAPHIC 13-8

Accrual of Loss Contingency—Union Pacific

9. Commitments and Contingencies (in part)

We also use accruals for liabilities when the loss contingency is probable and the amount is reasonably estimable. As of December 31, 2004 and 2003 we had liability of \$207 million and \$171 million, respectively, accrued for future environmental costs of which \$50 million had been recorded in liabilities as accrued casualty costs.

It's important to note that some loss contingencies don't involve liabilities at all. Some contingencies when resolved cause a noncash asset to be impaired, so accruing it means charging the related asset rather than recording a liability.

Accrual of a Loss Contingency—Asset Impairment

| | | | |
|-------------------|------------------------------|---------|--------|
| LOSS (or expense) | Asset (or valuation account) | UNKNOWN | AMOUNT |
|-------------------|------------------------------|---------|--------|

³Accounting for Contingencies, *Statement of Financial Accounting Standards No. 5* (Standard Comm. FASB, 1975).

⁴Measurable Estimation of the Amount of the Loss, *Statement of Financial Accounting Standards No. 5* (Standard Comm. FASB, 1975).

The most common loss contingency of this type is an uncollectible receivable. You have earned these before, without knowing you were earning a loss contingency. (After all, had you guessed, *Credit* allowance for uncollectible accounts.)

If none or both of these criteria is not met, but there is at least a reasonable possibility that the loss will occur, a disclosure note should describe the contingency. It also should provide an estimate of the possible loss or range of loss, if possible. If an estimate cannot be made, a statement to that effect is needed.

Varian Medical Systems, Inc. designs and manufactures cancer therapy systems. VMS filed the 10-Ks concurrently from an investment was reasonably possible and accordingly does not assume a liability but provided the information noted on Exhibits 3-9.

A. Loss can suggest a
disaster or a failure
the removal of elements
if the ... of ...
... the ...
... the ...

Seite 2 von 2

1. $\frac{1}{2} \frac{d}{dt} \left(\frac{1}{2} m v^2 \right) = \frac{1}{2} m v \frac{dv}{dt}$
 2. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 3. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 4. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 5. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 6. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 7. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 8. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 9. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$
 10. $\frac{1}{2} m v^2 = \frac{1}{2} m v_0^2 + \frac{1}{2} m v_1^2$

GRAPHIC 13-9

Disclosure of Loss
Contingency—VMS
Inc.

Graphic 13-10 highlights appropriate accounting treatment for each possible conclusion: (a) the likelihood of an obligation's being confirmed and (b) the determinability of its dollar amount.

| | Dollar Amount of Potential Loss | | |
|---------------------|---------------------------------|----------------------|--------------------------|
| | Known | Reasonably Estimable | Not Reasonably Estimable |
| Unlikely | | | Disclosure not required |
| Reasonably possible | Disclosure required | Disclosure required | Disclosure not required |
| Likely | Disclosure required | Disclosure required | Disclosure required |

Figure 13-20

Accounting Treatment of Loss Contingencies

A *local contingency* is an activity of a class in which an attribute is not reasonably be estimated.

as he trains quarterbacks and other potential off-balance-sheet risk takers, discussed in the next chapter.

PRODUCT WARRANTIES AND GUARANTEES

Manufacturer's Original Warranty. Satisfaction guaranteed! Your money back if not satisfied!—anything goes wrong in the first five years or 50,000 miles. (Three-year guarantee. These and similar promises accompany many consumer goods. The reason—to boost sales—follows, then, that any costs of making good on such guarantees should be recorded as expenses in the same accounting period the products are sold (matching principle). The trouble is that much of the cost usually occurs ten or more years later. This is a loss contingency. There may be a future sacrifice of economic benefits (cost of satisfying the warranty) due to an existing circumstance (the guaranteed products have been sold) that does not act as a certain future event (customer claim).

As you might expect, meeting the accrual criteria is more likely for some types of loss contingencies than for others. For instance, the outcome of pending litigation is particularly hard to predict. On the other hand, the criteria for accrual almost always are met for some type of loss contingencies. Product warranties (or product guarantees) inevitably apply. And while we usually can't predict the liability associated with an individual sale, reasonably accurate estimates of the *total* liability for a period usually are possible, based on

1. **המחיר** – מחיר המכירה הנמוך ביותר של המוצר.
 2. **המחיר** – מחיר המכירה הנמוך ביותר של המוצר.
 3. **המחיר** – מחיר המכירה הנמוך ביותר של המוצר.
 4. **המחיר** – מחיר המכירה הנמוך ביותר של המוצר.

The contingent liability for product warranties should always be adjusted.

ILLUSTRATION 13-6 Product Warranty

The nature of estimating product warranty expense is that it is an estimate of the cost of the product warranty liability.

prior experience. So the contingent liability for warranties and guarantees usually is accrued. The estimated warranty (guarantee) liability is credited and warranty (guarantee) expense is debited in the reporting period in which the product under warranty is sold. This is demonstrated in Illustration 13-6.

Cardco Health, a supplier of health and fitness products, introduced a new therapeutic chair carrying a two-year warranty against defects. Estimates based on industry experience indicate warranty costs to be sales during the first 12 months following the sale and the next 12 months during December 2006, its first month of availability. Cardco sold \$2 million of the chairs.

During December

| | | |
|------------------------------|-----------|-----------|
| Cash and accounts receivable | 2,000,000 | |
| Sales revenue | | 2,000,000 |

December 31, 2006 (adjusting entry)

| | | |
|------------------------------|---------|---------|
| Warranty expense | 140,000 | |
| Estimated warranty liability | | 140,000 |

When customer claims are made and costs are incurred to satisfy those claims, the liability is reduced—let's say \$61,000 in 2007:

| | | |
|---|--------|--------|
| Estimated warranty liability | 61,000 | |
| Cash, wages payable, parts and supplies, etc. | | 61,000 |

Estimates of warranty costs cannot be expected to be precise. However, if the estimating method is monitored and revised when necessary, overestimates and underestimates should cancel each other over time. The estimated liability may be classified as current or as long-term and part long-term, depending on when costs are expected to be incurred.

Expected Cash Flow Approach Chapter 6, you learned of a framework for using future cash flows as the basis for measuring assets and liabilities, introduced by the FASB in 2006 with *Statement of Financial Accounting Concepts No. 7*, *Measuring Cash Flow Information and Present Value in Accounting Measurements*.¹⁴ The approach described in the concept Statement offers a way to take into account any uncertainty concerning the timing and timing of the cash flows. Although future cash flows in many instances are continuous and certain, the amounts and timing of cash flows are less certain in other situations, such as warranty obligations.

As demonstrated in Illustration 13-6, the traditional way of measuring a warranty obligation is to report the "best estimate" of the cash flows, ignoring the time value of money. On the basis of immateriality. However, when the warranty obligation spans more than one year and we can associate probabilities with possible cash flow outcomes, the approach described by SFAC No. 7 offers a more plausible estimate of the warranty obligation. The new "expected cash flow approach" incorporates specific probabilities of cash flows into its analysis. In Chapter 6 we discussed the expected cash flow approach to determining present value. Illustration 13-7 provides an example.

Extended Warranty Contracts It's difficult these days to buy a CD player, a digital camera, a car, or almost any durable consumer product without being asked to purchase an extended warranty agreement. An extended warranty provides warranty protection beyond the manufacturer's original warranty. Because an extended warranty is issued and sold separately from the warranted product, it essentially constitutes a separate sales transaction. An accounting question is: when should this revenue from the sale be recognized?

SFA No. 7 provides a framework for measuring cash flows in a way that is consistent with the measurement of assets and liabilities.

¹⁴ FASB issued this Statement of Financial Accounting Concepts No. 7, *Measuring Cash Flow Information and Present Value in Accounting Measurements*, in December 2006. The FASB also issued SFAC No. 7, *Measuring Cash Flow Information and Present Value in Accounting Measurements*, in December 2006.

older Health, a supplier of in-home health care products, introduced a new hemiplegic chair carrying a two-year warranty against defects during the summer of 2006. In its initial period of availability, Caldor sold \$2 million of the chairs. Industry experience indicates the following probability distribution for the potential warranty costs:

| Warranty Costs | Probability |
|----------------|-------------|
| 2007 | |
| \$50,000 | 20% |
| \$60,000 | 50% |
| \$70,000 | 30% |
| 2008 | |
| \$70,000 | 20% |
| \$80,000 | 50% |
| \$90,000 | 30% |

ILLUSTRATION 13-7
Product Warranty

Probabilities are associated with possible cash outcomes.

An arrangement with a service firm requires that costs for the two-year warranty period be accrued at the end of 2007 and 2008. The risk-free rate of interest is 5%. Applying the expected cash flow approach, at the end of the 2006 fiscal year, Caldor would record a warranty liability (and expense) of \$131,564, calculated as follows:

| | | |
|----------------|-----------|------------------|
| \$50,000 × 20% | \$10,000 | |
| 60,000 × 50% | 30,000 | |
| 70,000 × 30% | 21,000 | |
| | \$61,000 | |
| | × .952381 | \$ 58,095 |
| \$70,000 × 20% | \$14,000 | |
| 80,000 × 50% | 40,000 | |
| 90,000 × 30% | 27,000 | |
| | \$81,000 | |
| | × .907031 | 73,469 |
| | | \$131,564 |

The probability of each cash outcome provides the expected cash flows.

The present value of the expected cash flows is the estimated liability.

December 31, 2006 (adjusting entry)

| | | |
|---|---------|---------|
| Warranty expense | 131,564 | |
| Estimated warranty liability (calculated above) | | 131,564 |

In the accrual concept, revenue is recognized when earned, not necessarily when cash is received. Because the earning process for an extended warranty cost runs during the contract period, revenue should be recognized over the same period. So, revenue from separately priced extended warranty contracts is deferred as a liability at the time of sale and recognized on a straight-line basis over the contract period. Notice that this is similar to an advance payment for products or services that, as we discussed earlier, creates a liability to provide the products or services. We demonstrate accounting for extended warranties in Discussion 13-5.

Remember that the costs incurred to satisfy customer claims under the extended warranty contract will be recorded during the same three-year period, achieving a proper matching of revenues and expenses. If sufficient historical evidence indicates that the costs of satisfying customer claims will be incurred on other than a straight-line basis, revenue should be recognized by the same pattern (proportional to the expense).²¹

ILLUSTRATION 13-8
Extended Warranty

The manufacturer's extended warranty is a contract that provides for the repair or replacement of a product for a specified period of time. The warranty is a contract that provides for the repair or replacement of a product for a specified period of time.

Brand Name Appliances sells major appliances that carry a one-year manufacturer's warranty. Customers are offered the opportunity at the time of purchase to also buy a three-year extended warranty for an additional charge. On January 1, 2006, Brand Name sold a \$60 extended warranty.

| | | |
|--|----|----|
| January 3, 2006 | | |
| Cash (to customers' receivables) | 60 | |
| Unearned revenue—extended warranties | | 60 |
| December 31, 2007, 2008, 2009, adjusting entries: | | |
| Unearned revenue—extended warranties | 20 | |
| Revenue—extended warranties (\$60 ÷ 3) | | 20 |

PREMIUMS

Cash rebates have become commonplace. Cash register receipts, bar codes, rebate coupons, or other proofs of purchase often can be mailed to the manufacturer for cash rebates. Sometimes promotional offers promise premiums other than cash—like toys, dishes, and utilities to buyers of certain products. Of course the purpose of these premium offers is to stimulate sales. So it follows that the estimated amount of the cash rebates or the cost of noncash premiums estimated to be given out represents both an expense and an estimated liability in the reporting period the product is sold. Like a manufacturer's warranty, this is a contingent liability that always meets accrual criteria. Premiums are illustrated in Illustration 13-9.

ILLUSTRATION 13-9
Premiums

The manufacturer's premium is a contract that provides for the repair or replacement of a product for a specified period of time. The premium is a contract that provides for the repair or replacement of a product for a specified period of time.

CMX Corporation offered \$2 cash rebates on a particular model of hand-held hair dryers. To receive the rebate, customers had to mail a rebate form (included in the package) and the cash register receipt. Previous experience indicated that 30% of buyers would be redeemed. One million hair dryers were sold in 2006 and total payments to customers were \$225,000.

| | | |
|--|---------|---------|
| Promotional expense (30% × \$2 × 1,000,000) | 600,000 | |
| Estimated premium liability | | 600,000 |
| To record the estimated liability for premiums | | |
| Estimated premium liability | 225,000 | |
| Cash | | 225,000 |
| To record payments to customers for rebates | | |

The remaining liability of \$375,000 is reported in the 2006 balance sheet and is reduced as future rebates are paid. The liability should be classified as current or long term depending on when future rebates are expected to be paid.

Of course, if premiums actually are included in packages of products sold, an expense liability is created. For example, the costs of toys in Cracker Jack boxes and cereal toys and phone cards and compact discs or drink cans are simply expenses of the period the product is sold, for which the amount is readily determinable.

ADDITIONAL CONSIDERATION

Cents off coupons are a popular marketing tool. Coupons clipped from newspapers, from mail offers, or included in packages are redeemable for cash discounts at the time the coupon is presented. Issuing the coupon creates a contingent liability to be recorded in the period the coupon is issued. However, because the hoped-for sales don't materialize until later, a question arises as to when the related expense should be recognized. Logically, since the purchase of coupon offers is to stimulate sales, the expense properly should be deferred until the coupons are redeemed (when the sales occur).

Illustration

In December 18, 2006, Kraft Foods distributed coupons in newspaper inserts offering discounts off the purchase price of one of its cereal brands. Other coupons are presented to retailers. Retailers are reimbursed by Kraft for the face amount of coupons plus 10% handling. Previous experience indicates that 20% of coupons will be redeemed. Coupons issued had a face-face amount of \$5,000,000. Total payments to retailers in 2006 were \$50,000. Retailers were paid \$17,000 in 2005.

| | | |
|--|----------|----------|
| 1. Estimated expense (redemption rate 20%) | \$50,000 | |
| Cost: | | \$0,000 |
| Record payments to retailers for coupons in 2006 | | |
| Deferred promotional expense—2006 | | \$50,000 |
| Deferred coupon liability | | |
| Cost: \$50,000 - \$30,000 | | \$20,000 |
| Record the estimated liability for coupons in 2006 | | |
| 2. Estimated coupon liability | \$17,000 | |
| Cost: | | \$17,000 |
| Deferred expense (redemption rate 20%) | \$17,000 | |
| Deferred promotional expense | | \$17,000 |
| Record payments to retailers for coupons in 2005 | | |

This situation, though prevalent, is not addressed by promulgated accounting standards. In practice, most firms either (a) recognize the entire expense with the liability in the period the coupons are issued, like record premiums, or (b) recognize no liability in the period the coupons are issued, recording the expense when reimbursements are made. One reason is that the same coupons are reissued periodically making it difficult to associate specific reimbursements with specific issues. Another reason is that while the company between the time a retailer receives a coupon from customers and the time it is presented to the manufacturer for reimbursement prevents appropriate apportionment of the expense.

LITIGATION CLAIMS

While litigation similar to that disclosed by Ford in Graphic 13-7 on page 625 is not unusual, in fact, the majority of medium and large corporations annually report loss contingencies due to litigation. By far the most common disclosure is very specific regarding the actual lawsuit but with wording similar to that of litigation by Ford, as seen in an annual report of Sun Microsystems (Graphic 13-11).

Note 10: Commitments and Contingencies (in part)

In future periods, the outcome of the lawsuit may result in a loss or gain, and litigation is the opinion of the company's legal counsel regarding the outcome of any lawsuit. The company's legal counsel has advised that the outcome of the lawsuit is uncertain, and the company is unable to estimate the amount of any potential loss or gain.

GRAPHIC 13-11
Disclosure of Litigation Contingencies—Sun Microsystems, Inc.

In practice, accrual of a loss from pending or ongoing litigation is rare. Imagine why. Suppose you are chief financial officer of Petraz Foods. Petraz is the defendant in a \$44-million lawsuit. The company's legal counsel informally advises you that chances that the company will emerge victorious in the lawsuit are quite doubtful. Counsel feels the company will lose \$30 million. Now suppose you decide to accrue a \$30-million loss in your financial statements. Later, in the courtroom, your disclosure that Petraz management feels it is probable that the company will lose \$30 million would be welcome ammunition for the opposing legal counsel. Understanding this, most companies rely on the knowledge that in

Today's legal environment the outcome of litigation is highly uncertain, making likelihood predictions difficult. Companies usually do not record a loss until after the ultimate settlement has been reached or negotiations for settlement are substantially completed. Instead, the law firm typically describes the outcome of the litigation along with whether management has an adverse opinion. While this may affect the financial position of the company, as you can see in Graphic 13-12, **ExxonMobil Corporation**, in a recent quarterly report disclosed but did not accrue damages from a lawsuit it lost, even after the award was affirmed by trial court, because the company was appealing the verdict.

GRAPHIC 13-12

Disclosure of a
Lawsuit—ExxonMobil

17. Litigation and Other Contingencies (in part)

In May 2007, a state court in Louisiana returned a verdict against the company and directed payment of a judgment brought by a landowner claiming damage to his property. The judgment awarded the plaintiff \$50 million in compensatory damages and \$1 billion in punitive damages. The award was later affirmed by the trial court, and the litigation is in the process of being appealed to the Louisiana Fourth Circuit Court of Appeal. The ultimate outcome is not predictable and may have a more likely adverse effect upon the corporation's operations or financial condition.

SUBSEQUENT EVENTS

It is important to remember several weeks usually pass between the end of a company's fiscal year and the date the financial statements for that year actually are issued. Events occurring during this period can be used to clarify the nature of financial statement elements at report date. This situation can be represented by the following time line:

| Event | Date |
|-----------------------------------|----------|
| Loss contingency arises | 12/31/06 |
| Financial statements issued | 3/1/07 |
| Subsequent event | 1/15/07 |
| Clarification of loss contingency | 1/15/07 |
| Financial statements issued | 3/1/07 |

Cause of Loss Contingency

Clarification



Fiscal Year Ends

Financial Statements

For instance, if information becomes available that sheds light on a claim that exists when the fiscal year ended, that information should be used in determining the nature of a loss contingency materializing and accounting for amounts of the loss. The settlement of a lawsuit after the March 31 report date of **Measurement Specialists Inc.** apparently disclosed its accrual of a loss contingency (Graphic 13-13).

GRAPHIC 13-13

Accrual of Litigation
Contingency—
Measurement
Specialties Inc.

15. Commitments and Contingencies (in part)

On May 1, 2004, the company entered an agreement in principle with the SEC which would resolve the company's litigation of the Corbett v. As of March 31, 2004, the Company has provided an accrual of \$100,000.

For a loss contingency to be accrued, the cause of the lawsuit must have occurred before the accounting period ended. It is not necessary that the lawsuit actually was filed during the reporting period.

Sometimes, the cause of a loss contingency occurs after the end of the year but before financial statements are issued.

If an event giving rise to a contingency occurs after the year end, a liability should not be accrued.

Cause of Loss Contingency

Clarification

or Clarification



Fiscal Year Ends

Financial Statements

When a contingency comes into existence after the year-end, a liability cannot be accrued even if it did exist at the end of the year. However, if the failure to disclose the possible loss would cause the financial statements to be misleading, the situation should be described in a disclosure note, including the effect of the possible loss on key accounting numbers.

In fact, any event occurring after the fiscal year end but before the financial statements are issued that has a material effect on the company's financial position must be disclosed in a subsequent events disclosure note. Examples are an issuance of debt or equity securities, a merger combination, and discontinued operations.

A disclosure note of the Dow Chemical Company from its 2000 annual report is shown in Graphic 13-14 and describes an event that will occur in the first quarter of fiscal 2001.

3 Merger with Union Carbide Corporation

The following information is required to merge with Union Carbide as a condition for the purchase of its common stock and to acquire all shares of Union Carbide common stock and to acquire all shares of Union Carbide common stock.

GRAPHIC 13-14

Subsequent Events—
Dow Chemical
Company

UNASSERTED CLAIMS AND ASSESSMENTS

If a claim has yet to be made when the financial statements are issued, a contingency will not accrue or be disclosed. However, an unfiled lawsuit or an unasserted claim or assessment may not be disclosed unless it is *probable that the suit, claim, or assessment will*

If it is probable, then the likelihood of an unfavorable outcome and the feasibility of paying a dollar amount should be considered in deciding whether and how to report the loss.

For example, the IRS may be in the process of auditing a company's tax returns but has not prepared a deficiency assessment. If management feels an assessment is probable, then the tax assessment might need to be reported. An estimated loss and cost against liability would be accrued. If an unfavorable outcome is probable and the amount can be reasonably estimated. However, note disclosure alone would be appropriate if an unfavorable outcome is only reasonably possible, and no action is needed. If chances of that outcome are small. Notice that when the claim or assessment is unasserted as yet, a two-step process is used in deciding how it should be reported:

1. Is a claim or assessment probable? (If the answer to this question is no, no disclosure is needed; skip step 2.)
2. Only if a claim or assessment is probable should we evaluate (a) the likelihood of an unfavorable outcome and (b) whether the dollar amount can be estimated.

If the conclusion of step 1 is that the claim or assessment is not probable, no further action is required. If the conclusion of step 1 is that the claim or assessment is probable, the decision is to whether or not a liability is accrued or disclosed is precisely the same as when the claim or assessment already has been asserted.

As described in a recent disclosure note (see Graphic 13-15), Union Pacific felt that unasserted claims meet the criteria for accrual under this two-step decision process.

12 Commitments and Contingencies (in part)

The company and its subsidiaries periodically enter into various commitments and contingencies with their customers. It is not probable at this time that the company will incur a material loss or expense as a result of these commitments and contingencies. The company has not entered into any commitments or contingencies that are not disclosed in this report.

It is not probable that the company will incur a material loss or expense as a result of these commitments and contingencies. The company has not entered into any commitments or contingencies that are not disclosed in this report.

GRAPHIC 13-15

Unasserted Claims—
Union Pacific
Corporation

A loss contingency is recorded when the probability of a loss is reasonably certain.

Notice that the treatment of contingent liabilities is consistent with the accepted definition of liabilities as (a) probable, future sacrifices of economic benefits (b) that arise from present obligations to other entities and (c) that result from past transactions or events.²² The moral uncertainty involved with contingent liabilities means additional care is required to determine whether future sacrifices of economic benefits are probable and whether the amount of the sacrifices can be quantified.

Gain Contingencies

Gain contingencies are not accrued.

A gain contingency is an uncertain situation that might result in a gain. For example, pending lawsuit, one side—the defendant—faces a loss contingency; the other side—the plaintiff—has a gain contingency. As we discussed earlier, loss contingencies are accrued when the event confirming the obligation is probable and the amount can reasonably be quantified. However, gain contingencies are not accrued. The nonparallel treatment of contingencies follows the same conservative reasoning that mandates reporting some value at lower of cost or market. Specifically, it's desirable to anticipate losses, but potential gains should await their realization.

Though gain contingencies are not recorded in the accounts, they are disclosed in the financial statements. Care should be taken that the disclosure note not give "misleading implications as to the likelihood of realization."²³

CONCEPT REVIEW EXERCISE

CONTINGENCIES

Hanover Industries manufactures and sells food products and food processing machinery. While preparing the December 31, 2006, financial statements for Hanover, the following information was discovered relating to contingencies and possible adjustments to Hanover's 2006 financial statements were issued on April 1, 2007:

- On November 12, 2006, a former employee filed a lawsuit against Hanover alleging a discrimination and asking for damages of \$750,000. At December 31, 2006, Hanover's attorney indicated that the likelihood of losing the lawsuit was possible but not probable. On March 5, 2007, Hanover agreed to pay the former employee \$125,000 in return for withdrawing the lawsuit.
- After a tax audit of the 2005 return, the IRS has questioned some expenses paid to a major stockholder. At April 1, 2007, the IRS has not yet made an assessment of additional taxes, but Hanover feels it will. Hanover's accountants and legal counsel believe the deductions were appropriate but that if an assessment is made, there is a reasonable possibility that subsequent court action would result in an additional tax liability of \$35,000.
- Hanover grants a one-year warranty for each processing machine sold. Past experience indicates that the costs of satisfying warranties are approximately 2% of sales. During 2006, sales of processing machines totaled \$21,300,000. 2006 expenditures for warranty repair costs were \$178,000 related to 2006 sales and \$220,000 related to 2005 sales. On January 1, 2006, balance of the warranty liability account was \$250,000.
- Hanover is the plaintiff in a \$600,000 lawsuit filed in 2005 against Amadue Farms for failing to deliver on contracts for produce. The suit is in final appeal. Legal counsel advises that it is probable that Hanover will prevail and will be awarded \$300,000.
- Included with certain food items sold in 2006 were coupons redeemable for a kitchen appliance at the rate of five coupons per appliance. During 2006, 30,000 coupons were issued and 5,000 coupons were redeemed. Although this is the first such promotion in years, past experience indicates that 60% of coupons are never redeemed. An inventory of kitchen appliances is maintained, and a count shows that 1,000 are on hand at December 31, 2006, with a normal retail value of \$20 each and a cost of \$14,000 in total.

Instructions: Prepare the necessary adjusting entries for each of the above items. Explain the effect of each entry on the accounting equation.

Required

Determine the appropriate means of reporting each situation. Briefly explain your reasoning.

2. Prepare any necessary journal entries and state whether a disclosure note is needed.

1. This is a loss contingency. Hanover can use the information occurring after the end of the year in determining appropriate disclosure. The cause for the suit existed at the end of the year. Hanover should accrue the \$125,000 loss because an agreement has been reached, occurring, the loss into the amount of Hanover.

SOLUTION

| | | |
|--------------------|---------|---------|
| Net litigation | 125,000 | |
| Litigation—Hanover | | 125,000 |

A disclosure note also is appropriate.

In the final financial statements are issued, an IRS claim is asserted. However, it is not probable that the likelihood of an unfavorable outcome justifies applying the similar amount can be estimated; are a matter. No amount is necessary and an unfavorable outcome is not probable. But then, an unfavorable outcome is reasonably possible, a disclosure note is appropriate.

When the assertion of a claim is being asserted, a not probable disclosure must be entered even if an unfavorable outcome is thought to be probable in the event of an assessment and the amount is estimable.

The contingency—warranties should be accrued because it is probable that expenditures will be made and the amount can be estimated from past experience. When customer claims are made and costs are incurred to satisfy these claims the liability is reduced.

| | | |
|---|---------|---------|
| Monthly expense (2% of \$20,000,000) | 400,000 | |
| Estimated warranty liability | | 400,000 |
| Estimated warranty liability (1% of 220,000) | 220,000 | |
| Cash, wages payable, parts and supplies, etc. | | 220,000 |

The liability at December 31, 2006, would be reported as 78,000.

| Warranty Liability | | |
|--------------------|------------|----------------|
| in 2006 | | |
| | 250 | Balance Jan 1 |
| | 400 | 2006 expense |
| 2006 expenditures | 495 | |
| | <u>278</u> | Balance Dec 31 |

A disclosure note also is appropriate.

In a given contingent gain contingencies cannot be recorded even if the gain is probable and reasonably estimable. The gain should be recorded only when realized. It is to be disclosed, but are should be taken to avoid misleading language regarding the realizability of the gain.

The contingency for premiums should be accrued because it is probable that coupons will be redeemed and the amount can be estimated from past experience. When coupons are redeemed and appliances are issued, the liability is reduced.

| | | |
|---|--------|-------|
| Promotional expense (40% of 10,000) = \$400 | 19,200 | |
| Estimated premium liability | | 9,200 |
| Estimated premium liability (1% of 500,000) = \$500 | 8,000 | |
| Refund of premiums | | 8,000 |

Net gain

The liability at December 31, 2006, would be reported as \$1,200:

| Premium liability | |
|-------------------|---------------|
| 2006 premium | 2006 expense |
| 1,200 | Balance, 2006 |

A disclosure note also is appropriate:

DECISION MAKERS' PERSPECTIVE

Current liabilities impact a company's liquidity. Liquidity refers to a company's cash position. A company is liquid if it has sufficient cash (or other assets convertible to cash in a relatively short time) to pay currently maturing debts. Because the lack of liquidity can cause the demise of an otherwise healthy company, it is critical that managers as well as outside investors and analysts maintain close scrutiny of this aspect of a company's well-being.

Keeping track of the current ratio is one of the most common ways of doing this. The current ratio is intended as a measure of short-term solvency and is determined by dividing current assets by current liabilities:

When we compare liabilities that must be satisfied in the near term with assets that either are cash or will be converted to cash in the near term, we get a useful measure of a company's liquidity. A ratio of 1 to 1 or higher often is considered a rule-of-thumb standard, but like ratios, acceptability should be evaluated in the context of the industry in which the company operates and other specific circumstances. Keep in mind, though, that industry averages are only one indication of adequacy and that the current ratio is not one indication of liquidity.

We can adjust for the implicit assumption of the current ratio that all current assets are equally liquid. The acid-test (or quick) ratio is similar to the current ratio but is based on a more conservative measure of assets available to pay current liabilities. Specifically, the numerator (quick assets), includes only cash and cash equivalents, short-term investments, and accounts receivable. By eliminating current assets such as inventories and prepaid expenses that are less readily convertible into cash, the acid-test ratio provides a more rigorous indication of a company's short-term solvency than does the current ratio.

If either of these liquidity ratios is less than that of the industry as a whole, does that mean that liquidity is a problem? Perhaps, perhaps not. It does, though, raise a red flag that suggests caution when assessing other areas. It is important to remember that each ratio is only one piece of the puzzle. For example, profitability is probably the best long-run indicator of liquidity. Also, management may be very efficient in managing current assets so that current assets—receivables or inventory—are more liquid than they otherwise would be, or more readily available to satisfy obligations. The turnover ratios discussed in earlier chapters help measure the efficiency of asset management in this regard.

Given the actual and perceived importance of a company's liquidity in the minds of analysts, it's not difficult to adopt a management perspective and imagine efforts to manipulate the ratios that measure liquidity. For instance, a company might use its economic power to persuade its customers to influence the timing of accounts payable recognition by asking them to change their delivery schedules. Because accounts payable is included in the denominator in most measures of liquidity such as the current ratio, the timing of their recognition could mean the difference between an unacceptable ratio and an acceptable one. Or, by violating a debt covenant and compliance. For example, suppose a company with a current ratio of 1.25 (current assets of \$5 million and current liabilities of \$4 million) is in violation of a debt covenant requiring a minimum current ratio of 1.3. By delaying the delivery of a shipment of inventory, the ratio would increase to 1.33 (current assets of \$4 million and current liabilities of \$3 million).

It is important for creditors and analysts to be attentive for evidence of activities that would indicate timing strategies, such as unusual variations in accounts payable levels.

not noted that such timing strategies are similar to earnings management techniques we saw previously—specifically manipulating the timing of revenue and expense recognition in order to “smooth” the net income.

In the next chapter we continue our discussion of liabilities. Our focus will shift from short liabilities to long-term liabilities in the form of bonds and long-term notes. ■

FINANCIAL REPORTING CASE

SOLUTION



What are accrued liabilities? What is commercial paper? (p. 617) Accrued liabilities are reported for expenses already incurred but not yet paid (accrued expenses). These include salaries and wages payable, income taxes payable, and interest payable. Commercial paper is a form of notes payable sometimes used by large corporations to obtain temporary financing. It is sold

by companies as a short-term investment. It represents secured notes sold at minimum denominations of \$25,000 with maturities ranging from 30 to 270 days. Typically, commercial paper is issued directly to the buyer (lender) and is backed by a line of credit with a bank.

Why did Syntel Microsystems include some long-term debt in the current liability section? (p. 622) Syntel Microsystems did include some long-term debt in the current liability section. The currently maturing portion of a long-term debt must be reported as a current liability. Amounts are reclassified and reported as current liabilities when they become payable within the upcoming year.

Did they also report some current amounts as long-term debt? Explain. (p. 623) Yes, they

did. It is permissible to report short-term obligations as noncurrent liabilities if the company (a) intends to refinance on a long-term basis and (b) demonstrates the ability to do so by a refinancing agreement or by actual financing. As the note in the note explains, this is the case in a portion of Syntel's currently payable debt.

Must obligations be known contractual debts in order to be reported as liabilities? (p. 626)

No. From an accounting perspective, it is not necessary that obligations be known, legally enforceable debts to be reported as liabilities. They must only be probable and the dollar amount reasonably estimable.

Is it true that current liabilities are riskier than long-term liabilities? (p. 626) Other

things being equal, current liabilities generally are considered riskier than long-term liabilities. For that reason, management usually would rather report a debt as long term. Current debt, though, is not necessarily risky. The liquidity ratios we discussed in the chapter attempt to measure liquidity. Remember any such measure must be viewed in the context of other factors: industry standards, profitability, turnover ratios, and risk management activities, to name a few. ■

THE BOTTOM LINE

Liabilities are present obligations to sacrifice assets in the future because of something that already has occurred. Current liabilities are expected to require current assets (or the creation of other current liabilities), and usually are payable within one year.

Short-term bank loans usually are arranged under an existing line of credit with a bank or group of banks. When interest is discounted from the face amount of a note (a so-called noninterest-bearing note), the effective interest rate is higher than the stated discount rate. Large, highly rated firms sometimes sell commercial paper directly to the buyer (lender) to borrow funds at a lower rate than through a bank loan.

Accrued liabilities are recorded by adjusting entries for expenses already incurred, but for which cash has yet to be paid (accrued expenses). Familiar examples are salaries and wages payable, income taxes payable, and interest payable.

Short-term obligations can be reported as noncurrent liabilities if the company (a) intends to refinance on a long-term basis and (b) demonstrates the ability to do so by actual financing or a formal agreement to do so.



5. A loss contingency is an existing, uncertain situation involving potential loss depending on whether some future event occurs. Whether a contingency is accrued and reported as a liability depends on (a) the likelihood that the confirming event will occur and (b) what can be determined about the amount of loss. It is accrued if it is both probable that the confirming event will occur and the amount can be at least reasonably estimated.
6. A clarifying event before financial statements are issued, but after the year-end, can be used to determine how the contingency is reported. An unasserted suit, claim, or assessment warrants accrual or disclosure if it is probable it will be asserted. A gain contingency is a contingency that might result in a gain. A gain contingency is not recognized until it actually is realized. ■

PAYROLL-RELATED LIABILITIES

All firms incur liability taxes in connection with their payroll. These arise primarily from legal requirements to withhold taxes from employees' paychecks and from payroll taxes on the firm's themselves. Some payroll-related liabilities result from voluntary payroll deductions of amounts payable to third parties.

EMPLOYEES' WITHHOLDING TAXES

Employers are required by law to withhold federal (sometimes state) income taxes and Social Security taxes from employees' paychecks and remit these to the Internal Revenue Service. The amount withheld for federal income taxes is determined by a tax table furnished by the IRS and varies according to the amount earned and the number of exemptions claimed by the employee. Also, the Federal Insurance Contributions Act (FICA) requires employers to withhold a percentage of each employee's earnings up to a specified maximum. Both the percentage and the maximum are changed intermittently. As this text went to print, the deduction for Social Security was 6.2% of the first \$90,000 an employee earns. Additionally, a deduction for Medicare tax was .45% with no limit on the base amount. The employer must pay an equal (matching) amount on behalf of the employee.

VOLUNTARY DEDUCTIONS

Besides the required deductions for income taxes and Social Security taxes, employees often authorize their employers to deduct other amounts from their paychecks. These deductions might include union dues, contributions to savings or retirement plans, and insurance premiums. Amounts deducted this way represent liabilities until paid to the appropriate organizations.

EMPLOYERS' PAYROLL TAXES

The payroll tax mentioned earlier is the employer's matching amount of FICA taxes.³⁴ The employer also must pay federal and state unemployment taxes on behalf of its employees. The Federal Unemployment Tax Act (FUTA) requires a tax of 6.2% of the first \$7,000 earned by each employee. This amount is reduced by a 5.4% (maximum) credit for contributions to state unemployment programs, so the net federal rate often is .8%.³⁵ In states where the state rate is 1.4% but may be reduced by merit ratings affected by the employer's employment experience.

FRINGE BENEFITS

In addition to salaries and wages, withholding taxes, and payroll taxes, many companies provide employees a variety of fringe benefits. Most commonly, employers pay all or part of employees' insurance premiums and/or contributions to retirement income plans.

Representative payroll-related liabilities are presented in Illustration 3A.

As you study the illustration, you should note the similarity among all payroll-related liabilities. Amounts withheld—voluntarily or involuntarily—from paychecks are liabilities.

³⁴As noted previously, state unemployment tax programs.

the cost of lighting and fire alarms, payroll for the second week of January was \$10,000. The following deductions, fringe benefits, and taxes apply:

| | |
|--|----------|
| Federal income taxes to be withheld | \$20,000 |
| State income taxes to be withheld | 3,000 |
| Medical insurance premiums (Blue Cross)—
80% paid by employer | 1,000 |
| Employee contribution to voluntary retirement plan
(Fidelity Investments)—contributions matched by employer | 4,000 |
| Union dues (Local No. 222)—paid by employees | 100 |
| Life insurance premiums (Prudential life)—
80% paid by employer | 200 |
| Social security tax rate | 6.2% |
| Medicare tax rate | 1.45% |
| Federal unemployment tax rate (after state deduction) | 0.80% |
| State unemployment tax rate | 5.40% |

| | |
|--|---------|
| Salaries and wages expense (total amount earned) | 100,000 |
| Withholding taxes payable (federal income tax) | 20,000 |
| Withholding taxes payable (state income tax) | 3,000 |
| Social Security taxes payable (6.2%) | 6,200 |
| Medicare taxes payable (1.45%) | 1,450 |
| Payable to Blue Cross (insurance premiums—80%) | 800 |
| Payable to Fidelity Investments (employees' investment) | 4,000 |
| Payable to Local No. 222 (union dues) | 100 |
| Salaries and wages payable (net pay) | 64,950 |
| Payroll tax expense (total) | 13,850 |
| Social security taxes payable (employer's matching amount) | 4,200 |
| Medicare taxes payable (employer's matching amount) | 1,450 |
| FUTA payable (federal unemployment tax—0.8%) | 800 |
| State unemployment tax payable (5.4%) | 5,400 |
| Salaries and wages expense (fringe benefits) | 4,900 |
| Payable to Blue Cross (insurance premiums—20%) | 200 |
| Payable to Fidelity Investments (matching amount) | 4,000 |
| Payable to Prudential life (insurance premiums) | 200 |

ILLUSTRATION 13A-1
Payroll-Related Liabilities

Amounts withheld from paychecks represent liabilities until they are paid over to the government.

The employer's share of FICA and unemployment taxes constitutes the employer's payroll tax expense.

Fringe benefits are part of salaries and wages expense and represent liabilities until they are paid over to third parties.

turned over to appropriate third parties. Payroll taxes and expenses for fringe benefits incurred as a result of services performed by employees and also are liabilities until paid to appropriate third parties. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 13-1 What are the essential characteristics of liabilities for purposes of financial reporting?
- Q 13-2 What distinguishes current liabilities from long-term liabilities?
- Q 13-3 Seaboard Distributors owes a supplier \$10,000 on open account. The amount is payable in three months. What is the theoretically correct way to measure the reportable amount for this liability? In practice, how will it likely be reported? Why?
- Q 13-4 Bank deposit offers are arranged under existing lines of credit. What is a line of credit? How does a noncommitted use of credit differ from a committed line?
- Q 13-5 Banks sometimes loan cash under noninterest-bearing notes. Is it true that banks lend courtesy without interest?
- Q 13-6 How does commercial paper differ from a bank loan? Why is the interest rate often less for commercial paper?
- Q 13-7 Salaries of \$5,000 have been earned by employees by the end of the period but will not be paid to employees until the following period. How should the expense and related liability be reported? Why?

- Q 13-8 Under what conditions should an employer accrue an expense and the related liability for employees' sick pay or vacation for future absences? How do company custom and practice affect the accrual decision?
- Q 13-9 How are refundable deposits and customer advance payments similar? How do they differ?
- Q 13-10 Accruals collected for third parties represent liabilities until realized. Provide several examples of this and explain the accounting treatment.
- Q 13-11 Consider the following liabilities of Future Brands, Inc., at December 31, 2006, the company's fiscal year-end. Should they be reported as current liabilities or long-term liabilities?
- \$77 million of 8% notes are due on May 31, 2007. The notes are callable by the Company's bank, beginning March 1, 2007.
 - \$ 42 million of 8% notes are due on May 31, 2007. A debt covenant requires Future to maintain a certain ratio of current assets to current liabilities, of at least 2 to 1. Future is in violation of this requirement but has obtained a waiver from the bank until May 2007. Since both companies see, Future will correct the situation during the first half of 2007.
- Q 13-12 Long-term obligations usually are reclassified and reported as current liabilities when they become payable within the upcoming year or operating cycle (if longer than a year). Set is 25-year bond issue is reported as a long-term liability for 24 years but normally is reported as a current liability on the balance sheet during the 25th year of its term to maturity. Name a situation in which this would not be the case. Define a loss contingency. Provide three examples.
- Q 13-13 List and briefly describe the three categories of likelihood that a future event(s) will confirm the incurrence of the liability for a loss contingency.
- Q 13-14 Under what circumstances would a loss contingency be accrued?
- Q 13-15 Suppose the analysis of a loss contingency indicates that an obligation is not probable. What accounting treatment, if any, is warranted?
- Q 13-16 Name two loss contingencies that almost always are accrued.
- Q 13-17 Distinguish between the accounting treatment of a manufacturer's warranty and an extended warranty. Why the difference?
- Q 13-18 At December 31, the end of the reporting period, the analysis of a loss contingency indicates that an obligation is only reasonably possible through its dollar amount is readily estimable. During February, the financial statements are issued, new information indicates the loss is probable. What accounting treatment is warranted?
- Q 13-19 After the end of the reporting period, a contingency comes into existence. Under what circumstances, if any, should the contingency be reported in the financial statements for the period ended?
- Q 13-20 Suppose the Environmental Protection Agency is in the process of investigating Green Reaction, Inc., for possible environmental damage but has not prepared a penalty as of December 31, 2006, the company's fiscal year-end. Describe the two-step process involved in deciding how this unreported assessment should be reported.
- Q 13-21 You are the plaintiff in a lawsuit. Your legal counsel advises that your eventual victory is inevitable. You are to be awarded \$12 million, but your attorney confidently asserts, "Describe the appropriate accounting treatment."

BRIEF EXERCISES

BE 13-1 Bank loan accrued interest

• 12 LGS

BE 13-2 Non-interest-bearing note accrued interest

• 12 LGS

BE 13-3 Determining accrued interest

• 07 LGS

On October 1, Eder Fabrication borrowed \$6 million and issued a nine-month, 7% promissory note. Interest was payable at maturity. Prepare the journal entry for the issuance of the note and the appropriate adjusting entry for the note at December 31, the end of the reporting period.

On October 1, Eder Fabrication borrowed \$6 million and issued a nine-month promissory note, which was discounted at issuance at a 12% discount rate. Prepare the journal entry for the issuance of the note and the appropriate adjusting entry for the note at December 31, the end of the reporting period.

On July 1, Eder issued a \$100,000, 2%, 9-month note. Interest is payable at maturity. What is the amount of interest expense that should be recorded in a year-end adjusting entry if the fiscal year-end is December 31 and is September 30?

SE 15-4
commercial paper

Brinkle Corporation issued \$12 million of commercial paper on March 1 on a nine-month note. Interest was discounted at issuance at a 4% discount rate. Prepare the journal entry for the issuance of the commercial paper and its repayment at maturity.

SE 15-5
interest-bearing
note effective interest
rate

Lila Co. issued \$10 million of commercial paper on April 1 on a nine-month note. Interest was discounted at issuance at a 4% discount rate. What is the effective interest rate on the commercial paper?

SE 15-6
advance collection

On December 2, 2006, Pace Electronics received \$11,000 from a customer toward a cash sale of \$140,000 of diodes to be completed on January 16, 2007. What initial entries should Pace record in December 12 and January 16?

SE 15-7
sales tax

During December, Ranney Equipment made a \$600,000 credit sale. The state sales tax rate is 6% and the 30% sales tax rate is 3%. Prepare the appropriate journal entry.

SE 15-8
warranties

Right Medical introduced a new implant that carries a five-year warranty against manufacturer's defects. Based on industry experience with similar product introductions, warranty costs are expected to approximate 1% of sales. Sales were \$15 million and actual warranty expenditures were \$20,000 for the first year of selling the product. What amount, if any, should Right report as a liability at the end of the year?

SE 15-9
contingent liability

Consultants notified management of Gen. One Baby Products that a crib may pose a potential health hazard. Counsel indicated that a product recall is probable and is estimated to cost the company \$5.5 million. How will this affect the company's income statement and balance sheet this period?

SE 15-10
contingency

Skill Hardware is the plaintiff in a \$16 million lawsuit filed against a supplier. The lawsuit is in final appeal and legal counsel advises that it is virtually certain that Skill will win the lawsuit and be awarded \$12 million. How should Skill account for this event?

SE 15-11
contingency

Beil International can estimate the amount of loss that will occur if a foreign government expropriates home company property. Expropriation is considered reasonably possible. How should Beil report the loss contingency?

SE 15-12
contingencies

Household Solutions manufactures kitchen storage products. During the year, the company became aware of potential costs due to: (1) a possible product defect that is reasonably possible and can be reasonably estimated, (2) a safety hazard that is probable and cannot be reasonably estimated, and (3) a new product warranty that is probable and can be reasonably estimated. Which, if any, of these costs should be accrued?

SE 15-13
liability assessment

At March 13, 2007, the Environmental Protection Agency is in the process of investigating a possible emissions leak last summer at a facility of Now Chemical. The EPA has not yet proposed a penalty assessment. Now's fiscal year ends on December 31, 2006, and its financial statements are published in March, 2007. Management feels an assessment is reasonably possible, and if an assessment is made an unfavorable statement of \$1.5 million is probable. What, if any, action should Now take for its financial statements?

EXERCISES

Available with MyAccountingTools at www.mhhe.com/myaccountingtools.

SE 15-14
liability accrued
interest

An alternate exercise and problem set is available on the text website: www.mhhe.com/myaccountingtools.

On November 1, 2006, Quantum Technology, a geothermal energy supplier, borrowed \$1 million cash to fund a geological survey. The loan was made by Nevada Bank Corp. under a noncommitted short-term line of credit arrangement. Quantum issued a nine-month, 2% promissory note. Interest was payable at maturity. Quantum's fiscal period is the calendar year.

Required:

1. Prepare the journal entry for the issuance of the note by Quantum Technology.
2. Prepare the appropriate adjusting entry for the note by Quantum on December 31, 2006.
3. Prepare the journal entry for the payment of the note at maturity.

E 12-2

Order ranking according
interest in various
situations

• LO2, LO3

E 12-3

Multiple choice: CPA
exam, current liabilities

• LO1, LO2

On July 1, 2006, Rags-Lavender Industries issued nine-month notes to the amount of \$200 million. Interest is payable at maturity.

Required:

Determine the amount of interest expense that should be recorded as a year-end adjusting entry under each of the following independent assumptions:

| Interest Rate | Fiscal Year-End |
|---------------|-----------------|
| 7% | November 30 |
| 14% | September 30 |
| 17% | October 31 |
| 6% | January 1 |

In following questions, identify which current liabilities are implied from passages that appear on the CPA examination. Remember, be prepared to also complete the statements of questions.

Black's Company's advance payments to its special orders for machinery construction are subject to specifications. Those advances are currently usable information for 2006 is as follows:

| | |
|---|-----------|
| Customer advances (advance 12/31/05) | \$170,000 |
| Advances received with orders in 2006 | 104,000 |
| Advances applied to orders shipped in 2006 | 164,000 |
| Advances applicable to orders completed in 2006 | 50,000 |

In Black's December 31, 2006, balance sheet, what amount should be reported as a current liability to suppliers' purchases?

- \$0
- \$64,000
- \$14,000
- \$114,000

2. Which of the following is generally associated with payables classified as accounts payable?

| | Periodic Payment
of Interest | Secured
by Collateral |
|----|---------------------------------|--------------------------|
| a. | No | No |
| b. | No | Yes |
| c. | Yes | No |
| d. | Yes | Yes |

E 12-4

Short-term notes

• LO2

The following selected transactions relate to liabilities of United Insurance Corporation. United's fiscal year ends on December 31.

Required:

Prepare the appropriate journal entries through the maturity of each liability.

2006

- Jan. 13 Negotiated a revolving credit agreement with Parish Bank that can be renewed annually upon bank approval. The amount available under the line of credit is \$20 million at the bank's prime rate.
- Feb. 1 Arranged a three-month bank loan of \$5 million with Parish Bank under the line of credit agreement. Interest at the prime rate of 10% was payable at maturity.
- May 1 Paid the 10% note at maturity.
- Dec. 1 Supported by the credit line, issued \$10 million of commercial paper on a nine-month note. Interest was discounted at issuance at a 9% discount rate.
- 31 Recorded any necessary adjusting entries.

2007

- Sept. 1 Paid the commercial paper at maturity.

E 12-5

Paid future absences

• LO3

FW's Insurance Company's employees earn vacation time at the rate of 1 hour per 40-hour work period. The vacation pay vests immediately (that is, an employee is entitled to the pay even if employment terminates during 2006). Total wages paid to employees totaled \$404,000, including \$4,000 for vacations accrued taken in 2006 but not including vacations related to 2006 that will be taken in 2007. All vacations earned in 2006 were taken before January 1, 2007. No vacation accruals have been made for the vacations. No vacation premiums and no bonuses were paid during the period.

Required:

Prepare the appropriate adjusting entry for vacations earned but not taken in 2006.

4
 accrued liabilities

1. 100%

7
 other advances
 (debits)

8. 10%

3
 income deposits

4. 10%

1. 10
 other transactions
 (debiting advances
 to vendors)

4. 100%

E. C
 non-current
 liabilities (debits)

8. 10. 10%

1. 1
 other non-current
 liabilities (debits)

4. 10. 10%

In January 2006, Poplar Fabricators Corporation agreed to grant its employees two weeks' vacation each year, with the stipulation that vacations earned each year can be taken the following year. For the year ended December 31, 2006, Poplar Fabricators' employees each earned an average of 5.8333 weeks' vacation. Seven employees' vacation weeks earned in 2006 were not taken during 2006.

Required:

1. Prepare the appropriate adjusting entry for vacations earned but not taken in 2006.
2. Suppose wage rates for employees have risen by an average of 4 percent by the time vacations actually are taken in 2007. Also, assume wages earned in 2007 (including vacations earned and taken in 2007) were \$31 million. Prepare a journal entry that summarizes 2007 wages and the payment for 2006 vacations taken in 2007.

Bayanan Brand Civil opened for business in November 2006. During its first two months of operations, the restaurant sold gift certificates in various amounts totaling \$5,200, mostly as Christmas presents. They are redeemable for meals within one year of the purchase date. Although experience within the industry indicates that 80% of gift certificates are redeemed within one year, Certificates totaling \$1,500 were presented for redemption during 2006 for meals having a menu price of \$2.00. The sales tax rate on restaurant sales is 4% assessed at the time meals (not gift certificates) are purchased. Sales taxes will be required to January 1, 2007.

Required:

1. Prepare the appropriate journal entries (in summary form) for the gift certificates sold during 2006 (keeping in mind that for liability each sale of a gift certificate or a meal would be recorded individually).
2. Determine the liability for gift certificates to be reported on the December 31, 2006, balance sheet.
3. What is the appropriate classification (current or noncurrent) of the liability as of December 31, 2006?

Universal Screenmanufacturers sells perishable electronic components. Items must be shipped and stored in reusable protective containers. Customers pay a deposit for each container received. The deposit is equal to the container's cost. They receive a refund when the container is returned. During 2006, deposits collected on containers shipped were \$850,000.

Deposits are forfeited if containers are not returned within 18 months. Containers held by customers at January 1, 2006, represented deposits of \$250,000. In 2006, \$740,000 was refunded and deposits forfeited were \$15,000.

Required:

1. Prepare the appropriate journal entries for the deposits received and returned during 2006.
2. Determine the liability for refundable deposits to be reported on the December 31, 2006, balance sheet.

The following selected transactions relate to liabilities of Interstate Farm Implement for December 31, 2006 (assume a fiscal year ends on December 31).

Required:

Prepare the appropriate journal entries for these transactions.

1. On December 15, received \$7,500 from Bradley Farms (from the purchase of a \$90,000 tractor to be delivered on January 6, 2007).
2. During December, received \$25,000 of refundable deposits relating to containers used to transport equipment parts.
3. During December, credit sales totaled \$500,000. The state sales tax rate is 5% and the local sales tax rate is 2% (This is a summary journal entry for the many individual sales transactions for the period).

A recent annual report of Sprint Corporation contained a rather lengthy narrative entitled "Review of Segmental Results of Operations." The narrative noted that short-term notes payable and commercial paper outstanding at the end of the year aggregated \$736 million and that during the following year "This entire balance will be replaced by the issuance of long-term debt or will continue to be refinanced under existing long-term credit facilities."

Required:

How did Sprint report the debt on its balance sheet? Why?

At December 31, 2006, Newman Engineering's liabilities include the following:

1. \$10 million of 9% bonds were issued for \$10 million on May 31, 1985. The bonds mature on May 31, 2017, but bondholders have the option of calling (demanding payment on) the bonds on May 31, 2007. However, the option to call is not expected to be exercised, given prevailing market conditions.
2. \$14 million of 8% notes are due on May 31, 2010. A debt covenant requires Newman to maintain current assets at least equal to 125% of its current liabilities. On December 31, 2006, Newman is in violation of this covenant. Newman obtained a waiver from National City Bank until June 2007.

having convinced the bank that the company's normal 2 to 3 ratio of current assets to current liabilities will be reestablished during the first half of 2007.

3. \$7 million of 10% bonds were issued for \$7 million on August 31, 1975. The bonds mature on July 31, 2017. Sufficient cash is expected to be available to retire the bonds at maturity.

Required

What portion of the debt can be excluded from classification as a long-term liability (that is, reported as a long-term liability)? Explain.

E 13-12 Warranties

LO 106

Cupola Awning Company manufactures awnings for commercial buildings in 2006 that carry a two-year warranty against material and workmanship defects. Based on their experience with previous product lines, management estimates that the company's gross profit on sales, sales and actual warranty expenditures for the first year of a new product line are:

| Sales | Actual Warranty Expenditures |
|-------------|------------------------------|
| \$5,000,000 | \$37,500 |

Required

1. Does this situation represent a loss contingency? Why or why not? How should Cupola account for it?
2. Prepare journal entries that summarize sales of the awnings (assume all credit sales) and any aspects of the warranty that should be recorded during 2006.
3. What amount should Cupola report as a liability at December 31, 2006?

E 13-13 Extended warranties

LO 106

Carmex Electronics sells consumer electronics that carry a 90-day manufacturer's warranty. At the time of purchase, customers are offered the opportunity to also buy a two-year extended warranty for an additional charge. During 2006, Carmex received \$4,000 for these extended warranties, approximately evenly throughout the year.

Required

1. Does this situation represent a loss contingency? Why or why not? How should it be accounted for?
2. Prepare journal entries that summarize sales of the extended warranties (assume all credit sales) and any aspects of the warranty that should be recorded during 2006.

E 13-14 Contingency: product recall

LO 106

Sound Audio manufactures and sells audio equipment for automobiles. Engineers notified management in December 2006 of a current flaw in an amplifier that poses a potential fire hazard. An extensive investigation indicated that a product recall is virtually certain, estimated to cost the company \$2 million. The fiscal year ends on December 31.

Required

1. Should this loss contingency be accounted for? Explain.
2. What entry, if any, should Sound Audio report in its 2006 income statement?
3. What liability, if any, should Sound Audio report in its 2006 balance sheet?
4. Prepare any journal entry needed.

E 13-15 Impairment of accounts receivable

LO 106

The Panda Panda Company uses the allowance method to account for bad debts. At the beginning of 2006, the allowance account had a credit balance of \$75,000. Credit sales for 2006 totaled \$2,400,000 and the year-end accounts receivable balance was \$400,000. During this year, \$75,000 in receivables were determined to be uncollectible. Panda Panda anticipates that 3% of all credit sales will ultimately become uncollectible. The fiscal year ends on December 31.

Required

1. Does this situation describe a loss contingency? Explain.
2. What is the bad debt expense that Panda Panda should report in its 2006 income statement?
3. Prepare the appropriate journal entry to record the contingency.
4. What is the net realizable value (book value) Panda Panda should report in its 2006 balance sheet?

E 13-16 Premiums

LO 106

Drew-Richards Music is a regional music media retailer. As a promotion, it offers a \$5 cash rebate on specific CDs. Customers must mail in a proof-of-purchase card from the package plus the cash required to receive the rebate. Experience suggests that 70% of the rebates will be claimed. Twenty thousand CDs were sold in 2006. Total rebates to customers in 2006 were \$21,000 and were recorded as promotional expense when paid. The fiscal year ends on December 31.

Required

1. What is the promotional expense that Drew-Richards should report in its 2006 income statement?
2. What is the premium liability that Drew-Richards should report in its 2006 balance sheet?
3. Prepare the appropriate journal entry to record the contingency.

E 13-17 Impaired asset

LO 106

At April 1, 2007, the IRS is in the process of auditing the tax returns of Star Lamination, Inc. for the previous three years, but has not prepared a deficiency assessment. Star's fiscal year ends on December 31. The company's financial statements are published in April 2007.

Required

For each of the following scenarios, determine the appropriate way to report the situation. Explain your reasoning and prepare any necessary journal entry.

1. Management feels an assessment is reasonably probable, and if an assessment is made an unfavorable settlement of \$13 million is reasonably probable.
2. Management feels an assessment is reasonably probable, and if an assessment is made an unfavorable settlement of \$13 million is probable.
3. Management feels an assessment is probable, and if an assessment is made an unfavorable settlement of \$5 million is probable.
4. Management feels an assessment is probable, and if an assessment is made an unfavorable settlement of \$13 million is probable.

The following selected transactions relate to contingencies of Classical Tool Makers, Inc., whose reporting year ends on the 31st of December. Financial statements are published on April 15.

Required

Prepare the appropriate journal entries to record any amounts that should be recognized as a result of each of these contingencies and indicate whether a disclosure note is indicated.

1. Classical's products carry a two-year warranty against manufacturer's defects. Based on previous experience, warranty costs are expected to approximate 4% of sales. Sales were \$2 million (all credit) for 2006. Actual warranty expenditures were \$80,000 and were recorded as warranty expense when incurred.
2. Although no customer lawsuits have been shown to be meritorious, Classical estimates that 2% of credit sales will eventually prove uncollectible.
3. In December 2006, the State of Tennessee filed suit against Classical, seeking penalties for violations of clean air laws. On January 13, 2007, Classical reached a settlement with state authorities to pay \$1.5 million in penalties.
4. Classical is the plaintiff in a \$4 million lawsuit filed against a supplier. The suit is in final appeal and attorneys advise that it is virtually certain that Classical will win the case and be awarded \$2.5 million.
5. In November 2006, Classical became aware of a design flaw in an industrial saw that poses a potential electrical hazard. A product recall appears probable. Such an action would likely cost the company \$400,000.
6. Classical offered \$25 cash rebate on a new model of jig saw. Customers must mail in a proof-of-purchase card from the package plus the cash register receipt to receive the rebate. Experience suggests that 60% of the rebates will be claimed. Ten thousand of the jigsaws were sold in 2006. Total rebates to customers in 2006 were \$105,000 and were recorded as promotional expense when paid.

The following questions dealing with current liabilities are adapted from questions that appeared on past CPA examinations. Determine the response that best completes the statements or questions.

During 2006, Smith Co. filed suit against West, Inc., seeking damages for patent infringement. At December 31, 2006, Smith's legal counsel believed that it was probable that Smith would be successful against West for an estimated amount in the range of \$75,000 to \$150,000, with all amounts in the range considered equally likely. In March 2007, Smith was awarded \$100,000 and received full payment thereof. In its 2006 financial statements, issued in February 2007, how should this award be reported?

- a. As a receivable and revenue of \$100,000.
 - b. As a receivable and deferred revenue of \$100,000.
 - c. As a disclosure of a contingent gain of \$100,000.
 - d. As a disclosure of a contingent gain of an undetermined amount in the range of \$75,000 to \$150,000.
2. Vada Co. sells appliances that include a three-year warranty. Service calls under the warranty are performed by an independent mechanic under a contract with Vada. Based on experience, warranty costs are estimated at \$30 for each machine sold. When should Vada recognize these warranty costs?
 - a. Evenly over the life of the warranty.
 - b. When the service calls are received.
 - c. When payments are made to the mechanic.
 - d. When the machines are sold.
 3. Management can estimate the amount of loss that will occur if a foreign government expropriates some company assets. If expropriation is reasonably possible, a loss contingency should be
 - a. Disclosed but not accrued as a liability.
 - b. Disclosed and accrued as a liability.
 - c. Accrued as liability but not disclosed.
 - d. Neither accrued as a liability nor disclosed.

4. In December 2006, Milk Co. began including one coupon in each package of candy that it sells and offering a toy in exchange for 40 cents and five coupons. The toys cost Milk \$0.25 each. Exactly 60% of the coupons will be redeemed. During December, Milk sold 1,000,000 packages of candy and no coupons were redeemed. In its December 31, 2006, balance sheet, what amount should Milk report as estimated liability for coupons?
- \$0
 - \$50,000
 - \$1,000,000
 - \$1,500,000

E 3-20
Classifications of liabilities

• L01 through L06

Indicate (by letter) the way each of the items listed below should be reported on a balance sheet as of December 31, 2016.

| Items | Reporting Method |
|--|-------------------------|
| 1. Commercial paper | B. Not reported |
| 2. Noncommitted line of credit | C. Current liability |
| 3. Customer advances | L. Long-term liability |
| 4. Estimated warranty cost | D. Disclosure note only |
| 5. Accounts payable | A. Asset |
| 6. Long-term bonds that will be callable by the creditor in the upcoming year unless an existing violation is not corrected (there is a reasonable possibility the violation will be corrected within the next period) | |
| 7. Notes due March 3, 2007 | |
| 8. Interest accrued on notes, Dec. 31, 2016 | |
| 9. Short-term bank loan to be paid with proceeds of sale of common stock | |
| 10. A determinable gain that is contingent on a future event that appears extremely likely to occur in three months | |
| 11. Unasserted assessment of back sales that probably will be asserted, in which case there would probably be a loss in six months | |
| 12. Unasserted assessment of back sales with a reasonable possibility of being asserted, in which case there would probably be a loss in six months | |
| 13. A determinable loss from a past event that is contingent on a future event that appears extremely likely to occur in three months | |
| 14. Bond sinking fund | |
| 15. Long-term liability payable by the corporation in the upcoming year that is not expected to be settled | |

E 3-21
Warranty expense
Change in estimate

• L03, L06

Wendover Lawn Products introduced a new line of automatic sprinklers in 2005. In its first year, sales were \$500,000 and sales in 2006 were \$600,000. Because the line was the first of its kind, the company had no prior experience in the industry. Based on that experience, warranty expenses were expected to approximate 2% of sales. Sales of the sprinklers in 2005 were \$500,000. During 2006, the following amounts relating to the contingency for warranties were recorded during the first year of selling the product.

| | | |
|---|--------|--------|
| Accrued liability and expense | | |
| Warranty expense (2% of \$500,000) | 50,000 | |
| Estimated warranty liability | | 50,000 |
| Actual expenditures (summary entry) | | |
| Estimated warranty liability | 25,000 | |
| Cash, wages payable, parts and supplies, etc. | | 25,000 |

In late 2006, the company's claims experience was evaluated and it was determined that claims were a more than expected—3% of sales rather than 2%.

Required:

- Assuming sales of the sprinklers in 2006 were \$600,000 and warranty expenditures in 2006 were \$50,000, prepare any journal entries related to the warranty.
- Assuming sales of the sprinklers were discontinued after 2005, prepare any journal entry(ies) related to the warranty.

E 3-22
Change in accounting
estimate

• L03

The Courtship Club of Virginia filed suit in October 2000 against Northern Timber Corporation seeking civil penalties and injunctive relief for violations of environmental laws regulating forest management. When the 2000 (1999) lawsuit was brought in 2000, Northern had not received a certificate of environmental approval, but legal counsel advised Northern Timber that it was probable the Virginia Department of Environmental Quality would impose \$1,000,000 in penalties. The following entry was recorded:

| | |
|------------------|---------|
| Loss situation | 100,000 |
| Salary situation | 000,000 |

Later in 2016, a settlement was reached with state authorities to pay a total of \$440,000 to cover the cost of violations.

Required

1. Prepare any journal entries related to the change.
2. Briefly describe other steps Nordstrom should take to report the change.

The Dow Chemical Company provides chemical, plastic, and agricultural products and services to various consumer markets. The following excerpt is taken from the disclosure notes of Dow's 2013 annual report.

At December 31, 2013, the Company had accrued obligations of \$18 million for environmental remediation activities, including \$4 million for the remediation of Superfund sites. This is management's best estimate of the amount of costs that will be incurred to complete the remediation activities. The amount of costs that will be incurred to complete the remediation activities may vary significantly from the amount of costs that will be incurred to complete the remediation activities due to a number of factors, including the extent of contamination, the complexity of the remediation activities, and the availability of funding. The amount of costs that will be incurred to complete the remediation activities may vary significantly from the amount of costs that will be incurred to complete the remediation activities due to a number of factors, including the extent of contamination, the complexity of the remediation activities, and the availability of funding.

Required

Does the excerpt describe a loss contingency? Under what conditions would Dow accrue such a contingency? What journal entry did Dow use to record the provision shown?

The following questions dealing with current liabilities and contingencies are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

1. An employee has the right to receive compensation for future paid leave, and the payment of compensation is probable. If the obligation relates to rights that vest but the amount cannot be reasonably estimated, the employer should:
 - a. Accrue a liability with proper disclosure.
 - b. Not accrue a liability nor disclose the situation.
 - c. Accrue a liability; however, the subsequent disclosure is not required.
 - d. Not accrue a liability; however, disclosure is required.
2. The accrual of a contingent liability and the related loss should be recorded when the:
 - a. Future event, such as a future lawsuit, can be determined to result in a loss.
 - b. Future event that gives rise to the liability is unusual in nature and nonrecurring.
 - c. Amount of the loss resulting from the event is reasonably estimable and the occurrence of the loss is probable.
 - d. Event that gives rise to the liability is unusual and its occurrence is probable.
3. For the past 3 years, Kemco Inc. has been negotiating a labor contract with potentially significant wage increases. Before completing the year-end financial statements on November 30, Kemco determined that the contract was likely to be signed in the near future. Kemco has estimated that the effect of the new contract will cost the company either \$ 3,000,000, \$2,000,000, or \$1,000,000. Also, Kemco believes that each estimate has an equal chance of occurring and that the likelihood of the new contract being retroactive to the fiscal year ending November 30 is probable. According to SFAS 5, Kemco should:
 - a. Do nothing because no loss will occur if the contract is never signed.
 - b. Disclose each loss contingency amount on the notes to the November 30 financial statements.
 - c. Accrue \$1,000,000 on the income statement, and disclose the nature of the contingency and the subsequent loss exposure.
 - d. Follow current ethical and accrue \$200,000 in the income statement, and disclose the nature of the contingency.
4. Water Company intends to refinance a portion of its short-term debt next year and is negotiating a long-term financing agreement with a local bank. This agreement will be noncancelable and will extend for 3 years. The payment of short-term debt that Water Company can exclude from its statement of financial position at December 31:
 - a. May exceed the amount available for refinancing under the agreement.
 - b. Depends on the demonstrated ability to consummate the refinancing.

E 13.25

Payroll-related liabilities (Based on Appendix J)

• LO3

- From the adjustment by the difference between the present value and the market value of the derivative.
- Is reduced by the property's net change in the working capital ratio.

Lee Financial Services pays employees monthly. Payroll information is listed below for January 2006, the first month of Lee's fiscal year. Assume that none of the employees accumulated any relevant wage base.

| | |
|--|-----------|
| Salaries | \$500,000 |
| Federal income taxes to be withheld | 60,000 |
| Federal unemployment tax rate | 0.80% |
| State unemployment tax rate (after FUTA deduction) | 0.40% |
| Social Security (FICA) tax rate | 7.65% |

Required

Prepare the appropriate journal entries to record salaries and wages expense and payroll tax expense for the January 2006 pay period.

PROBLEMS

P 13.

Bank loan accrued interest

• LO2, LO3

Excel

An alternate exercise and problem set is available on the web website: www.cengage.com/applications

Blanton Plastics, a household plastic product manufacturer, borrowed \$1.4 million cash on October 1, 2006, to provide working capital for year-end production. Blanton issued a four-month, 12% promissory note to NCB Bank under a prearranged short-term line of credit. Interest on the note was payable at maturity, the firm's fiscal period is the calendar year.

Required

- Prepare the journal entries to record (a) the issuance of the note by Blanton Plastics and (b) NCB Bank's receipt of the cash on October 1, 2006.
- Prepare the journal entries by both firms to record all subsequent events related to the note during January 2007.
- Suppose the face amount of the note was adjusted to include interest (a noninterest-bearing note) at 12% is the bank's stated discount rate. Prepare the journal entries to record the issuance of a noninterest-bearing note by Blanton Plastics on October 1, 2006, the adjusting entry at December 31, and payment of the note at maturity. What would be the effective interest rate?

P 13.2

Various transactions involving liabilities

• LO1 through LO4

Excel

Camden Biotechnology began operations in September 2006. The following selected transactions related to liability of the company for September 2006 through March 2007. Camden's fiscal year ends on December 31. Its financial statements are issued in April.

2006

- On September 1, opened checking accounts at Second Commercial Bank and negotiated a three-year line of credit of up to \$15,000,000 at the bank's prime rate (10.5% at the time). The company will pay no commitment fees.
- On October 1, borrowed \$12 million cash from Second Commercial Bank under the line of credit and issued a five-month promissory note. Interest at the prime rate of 10% was payable at maturity. Management planned to use the cash to develop a new product in February to repay the note.
- Received \$2,000 of refundable deposits in December for reusable containers used to transport and store chemical-based products.
- For the September–December period, sales on account totaled \$4,000,000. The sales were on the 3% and the local sales tax rate is 3%. (This is a summary journal entry for the many individual sales transactions for the period.)
- Recorded the adjusting entry for accrued interest.

2007

- In February, issued \$10 million of 6-year bonds at face value and paid the bank costs on the March due date.
- Half of the reusable containers covered by refundable deposits were returned in March. The remaining containers are expected to be returned during the next six months.

Required

- Prepare the appropriate journal entries for these transactions.
- Prepare the current and long-term liabilities sections of the December 31, 2006, balance sheet. List accounts payable on that date with \$250,000.

current noncurrent
liabilities or debt

• 100

current liabilities

• 100

Excel

bonus compensation

• 100

The balance sheet at December 31, 2006, for Nevada Harvester Corporation includes the liabilities listed below.

- 11% bonds with a face amount of \$40 million were issued for \$40 million on October 31, 1997. The bonds mature on October 31, 2017. Bondholders have the option of calling (demanding payment on) the bonds on October 31, 2007, at a redemption price of \$40 million. Market conditions are such that the call option is expected to be exercised.
- Management intended to refinance \$6 million of its 9% notes that mature in May 2007. In early March, prior to the announcement of the 2006 financial statements, Nevada Harvester negotiated a line of credit with a commercial bank for up to \$5 million any time during 2007. Any borrowings will mature two years from the date of borrowing.
- Noncallable 12% bonds with a face amount of \$20 million were issued for \$20 million on September 30, 1985. The bonds mature on September 30, 2007. Sufficient cash is expected to be available to retire the bonds at maturity.
- A \$1.2 million 9% bank loan is payable on October 31, 2012. The bank has the right to demand payment after any fiscal year-end in which Nevada Harvester's ratio of current assets to current liabilities falls below a contractual minimum of 1.7 to 1 and remains so for six months. That ratio was 1.45 on December 31, 2006, due primarily to an unusual temporary decline in inventory levels. Normal inventory levels will be reestablished during the first quarter of 2007.

Required

- Determine the amount that can be excluded from either current or a current liability (that is, reported as a noncurrent liability) for each. Explain the reasoning behind your classification.
- Prepare the liability section of a classified balance sheet, and any necessary footnote disclosure for Nevada Harvester at December 31, 2006. Accounts payable and accruals are \$22 million.

The unadjusted trial balance of the Manufacturing Equipment at December 31, 2006 (the end of its fiscal year), included the following account balances. Manufacturing's 2006 financial statements were issued on April 1, 2007.

| | |
|-----------------------|-----------|
| Accounts receivable | \$ 42,500 |
| Accounts payable | 28,000 |
| Bank note payable | 60,000 |
| Mortgage note payable | 1,200,000 |

Other information

- The bank notes, issued August 1, 2006, are due on July 31, 2007, and pay interest at a rate of 9% payable at maturity.
- The mortgage note is due on March 1, 2007. Interest at 9% has been paid up to December 31 (assume 9% is a realistic rate). Manufacturing intended at December 31, 2006, to refinance the note up to due date with a new 10-year mortgage note. In fact, on March 1, Manufacturing paid \$250,000 in cash on the principal balance and refinanced the remaining \$950,000.
- Included in the accounts receivable balance at December 31, 2006, were two subsidiary accounts that had been overpaid and had credit balances totaling \$18,000. The accounts were of two independent customers who were expected to order more merchandise from Manufacturing and apply the overpayments to those future purchases.
- On November 1, 2006, Manufacturing rented a portion of its factory to a tenant for \$30,000 per year payable in advance. The payment for the 3 months ended October 31, 2007, was received as required and was recorded in rent revenue.

Required

- Prepare any necessary adjusting journal entries at December 31, 2006, pertaining to each item of other information a–d.
- Prepare the current and long-term liability sections of the December 31, 2006, balance sheet.

Sometimes compensation packages include bonuses designed to provide performance incentives to employees. The difficulty a bonus can cause for accountants is not an accounting problem, but a math problem. The complication is that the bonus formula sometimes specifies that the calculation of the bonus is based on pay up to the bonus itself. This occurs anytime the bonus is a percentage of income because expenses are components of income, and the bonus is an expense.

Reggie's Publishing has an executive compensation plan through which a division manager receives a bonus equal to 10% of the division's net income. Division income in 2006 before the bonus and income tax was \$160,000. The tax rate is 40%.

Required

Express the bonus formula in one or more algebraic equation(s).*

*Remember when you solve algebraic equations, and you should if you would ever use it!

- Using these formulas calculate the amount of the bonus.
- Prepare the adjusting entry to record the bonus compensation.
- Bonus arrangements take many forms. Suppose the bonus specified that the bonus is 10% of the division's income before tax, but after the bonus itself. Calculate the amount of the bonus.

P 13-6

Various contingencies

- LO 5, LO 6

Eastern Manufacturing Company will be involved in other contingencies such as written below. Assume each contingency could result in a loss, and the probability of occurrence is 50%.

- Eastern is involved in a lawsuit brought by a supplier. In February 2007, judgment was rendered against Eastern for payment of \$100 million. The plaintiff's attorney has filed a motion to appeal the judgment and is unable to predict its outcome through a reasonable assessment of the facts.
- In November 2006, the State of Nevada filed suit against Eastern seeking civil penalties or injunctive relief for violations of environmental laws regulating hazardous waste. On January 12, 2007, Eastern reached a settlement with state authorities. Based upon discussions with legal counsel, management feels it is probable that \$140 million will be required to cover the cost of violations. Management believes that the alternate settlement of this claim will not have a material adverse effect on the company.
- Eastern is the plaintiff in a \$200 million lawsuit filed against United Steel for damages due to profits from rejected contracts and for unpaid receivables. The case is in final appeal and legal counsel advises that it is probable that Eastern will prevail and be awarded \$100 million.
- At March 15, 2007, the IRS is in the process of auditing Eastern's tax returns for 2004-2005 but has not prepared a deficiency assessment. Management feels an assessment is reasonably possible and an assessment is made an unfavorable settlement of up to \$175 million is reasonably possible.

Required:

- Determine the appropriate means of reporting each situation. Explain your reasoning.
- Prepare any necessary journal entries and disclosure notes.

P 13-7

Frequent flyer program

- LO 5, LO 6

Northeast Airlines operates a frequent flyer marketing program under which mileage credits are earned by flying on Northeast. The program was designed to retain and increase the business of frequent customers offering incentives for their continued patronage. Awards are issued to members at the 30,000 miles. All awards have an expiration date three years from the date earned. Experience indicates that 25% of the travel credits will actually be redeemed. Northeast accounts for its frequent flyer obligation on the balance sheet using the incremental cost method. The incremental costs include food, beverage, and an additional cost per passenger that is based on engineering formulas to determine the average fuel cost per pound of fuel. Northeast's liability for free travel at the beginning of 2006 was \$25 million. The incremental cost for free travel taken redeemed in 2006 was \$8 million. The costs of free travel earned for miles traveled in 2006 are estimated to be \$40 million. The fiscal year ends on December 31.

Required:

- Is it appropriate for Northeast to account for its frequent flyer program on the accrual basis? Why?
- What is the expense that Northeast should report in its 2006 income statement?
- What is the liability that Northeast should report in its 2006 balance sheet?
- Prepare the appropriate journal entries to record the year-end accrual of the 2006 expense.

P 13-8

Expected cash flow approach, product recall

- LO 5

The Heinrich Fire Company recalls a fire extinguisher in December 2006. If the recall is successful, the recall costs are expected to be \$50 million. However, if the recall is not successful, the recall costs are expected to be \$100 million. The company will incur substantial costs to recall the fire extinguisher if the recall is not successful. Based on past recalls, the industry consultant has provided the following probability distribution for the potential loss:

| Loss Amount | Probability |
|---------------|-------------|
| \$40 million | 25% |
| \$80 million | 50% |
| \$120 million | 25% |

An arrangement with the manufacturer of distribution equipment has all recall costs be settled at the end of 2007. The risk-free rate of interest is 3%.

Required:

- Applying the estimated cash flow approach of SFAC No. 7, estimate Heinrich's liability at the end of the 2006 fiscal year.
- Prepare the journal entry to record the contingent liability (and loss).
- Prepare the journal entry to accrue interest at the liability at the end of 2007.
- Prepare the journal entry to pay the liability at the end of 2007 assuming the actual cost is \$90 million. Heinrich records no additional loss if the actual costs are higher or a gain if the costs are lower.

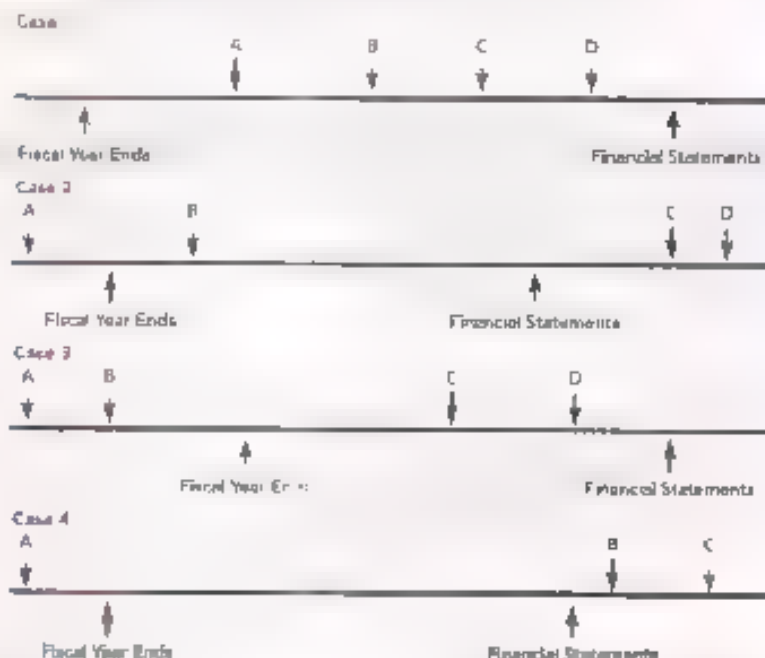
Excel

Subsequent events

Case 1

Lindbergh Chemicals became involved in investigations by the U.S. Environmental Protection Agency in relation to discharges connected to waste disposal sites. There are four possibilities regarding the timing of the alleged damage caused by Lindbergh: (a) investigation by the EPA of the EPA assessment of responsibility for the alleged settlement in case (a) assume that Lindbergh is not responsible for any problem until an investigation is made. Also, assume that once the EPA investigation begins, it is probable that a damage assessment will occur and that an agreement is made by the EPA. It is reasonably possible that a damage assessment will be paid by Lindbergh.

For each case, decide whether (a) a loss should be accrued in the financial statements with an explanatory note, (b) a disclosure note only should be provided, or (c) no disclosure is necessary.



Case help
or topic terminology
through word

Case help are several terms and phrases associated with current liabilities. Pair each item from List A (by letter) with the item from List B that is most appropriately associated with it.

List A

1. Face amount \times interest rate \times Time
2. Payable with current assets
3. Short-term debt to be refinanced with common stock
4. Present value of interest plus present value of principal
5. Noninterest-bearing
6. Noncommitted line of credit
7. Pledged accounts receivable
8. Reclassification of debt
9. Purchased by other corporations
10. Expenses not yet paid
11. Liability until refinanced
12. Applied against purchase price

List B

- a. Internal agreement
- b. Secured loan
- c. Refinancing prior to the issuance of the financial statements
- d. Accounts payable
- e. Accrued liabilities
- f. Commercial paper
- g. Current liabilities
- h. Long-term liability
- i. Useful valuation of liabilities
- j. Interest on debt
- k. Customer advances
- l. Customer deposits

Problem
Payroll-related
related to
Accounting

Admiral Petroleum Company offers its employees the option of contributing up to 4% of their wages or salaries, with the contribution being matched by Admiral. The company also pays 90% of medical and life insurance premiums. Disclosures relating to these plans and other payroll information for the first biweekly payroll period of February are listed below.

| | |
|--|-------------|
| Wages and salaries | \$2,000,000 |
| Employee contribution to voluntary retirement plan | 84,000 |
| Medical insurance premiums | 42,000 |
| Life insurance premiums | 9,000 |
| Federal income taxes to be withheld | 400,000 |
| Local income taxes to be withheld | 53,000 |
| Payroll taxes | |
| Federal unemployment tax rate | 0.80% |
| State unemployment tax rate (after FUTA deduction) | 5.40% |
| Social Security tax rate | 6.2% |
| Medicare tax rate | 1.45% |

Requirement

Prepare the appropriate journal entries to record salaries and wages expense and payroll tax expense for the biweekly pay period. Assume that no employee's cumulative wages exceed the relevant wage base.

BROADEN YOUR PERSPECTIVE



Real-World Case 3.1
Bank loan, accrued interest

• LO 1, 2

Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

A fellow accounting student has challenged your opinion regarding the classification of short-term obligation reported in being replaced by a long-term security. The security issued on August 31, 2003, had a term of one year and was reported as a long-term liability on the balance sheet. The company issued the security to replace the short-term obligation reported on the balance sheet. The company issued the security on September 1, 2003, and the security was reported as a long-term liability on the balance sheet. The company issued the security on September 1, 2003, and the security was reported as a long-term liability on the balance sheet. The company issued the security on September 1, 2003, and the security was reported as a long-term liability on the balance sheet.

You initially are hesitant because you don't recall encountering a situation in which short-term obligation was replaced by a long-term security. However, you are encouraged by remembering the classification issue is covered by an FASB pronouncement to which you have been referred. You review the FASB pronouncement and determine that the security should be classified as a long-term liability.

Requirement

Determine how the \$1,000,000 of contractual paper should be classified by consulting the FASB standards. Before doing so, formulate your own opinion on the proper treatment.

Real-World Case 3.2
Returnable containers

• LO 1, 2

The Zeeb Co. manufactures and distributes a variety of products. One of its products is a returnable container. The container is made of plastic and is designed to be used for a long period of time. The container is made of plastic and is designed to be used for a long period of time. The container is made of plastic and is designed to be used for a long period of time.

Requirement

The president and president of this start-up company has asked your opinion on how to account for the company's returnable containers. Formulate your own opinion on the proper treatment.

Real-World Case 3.3
Relationship of liabilities to assets and owners' equity

• LO 1

SPAC Inc. states that an equity asset, such as a common stock, and equity liabilities all pertain to the same company. Explain the relationship.

Real-World Case 3.1: Bank loan, accrued interest. © 2004 McGraw-Hill Education. All rights reserved. This case is based on information provided by the company. The company is not responsible for any errors or omissions.

4. Give employees 4 weeks' advance notice of their termination. The company will not be responsible for the absence of any employee who does not do this.

- Does compensation employees at their regular pay rate for time absent for military leave, maternity leave, and jury duty. Employees are allowed prearranged absence periods for each type of absence.
- Members of the new product development team are eligible for three months' paid sabbatical leave every four years. Five members of the team have just completed their fourth year of participation.
- Company policy permits employees four paid sick days each year. Unused sick days can accumulate and can be carried forward to future years.

- What are the conditions that require accrual of an expense and related liability for employees' compensation for future absences?
- For each of the three situations, indicate the circumstances under which accrual of an expense and related liability is warranted.

Outfront R Us owns several membership-based campground resorts throughout the Southwest. The company sells campground sites to new members, usually during a get-acquainted visit and tour. The campgrounds offer a wider array of on-site facilities than most. New members sign a multiyear contract, pay a down payment, and make monthly installment payments. Because no credit check is made and many members are repeat customers, the company has a high rate of default on its receivables.

Business has been brisk during its first three years of operations, and since going public in 1996, the market value of its stock has tripled. The first sign of trouble came in 2006 when the new sales dipped sharply.

One afternoon, two weeks before the end of the fiscal year, Diago Rice, CEO, and Janet Smit, controller, were having an active discussion in Sam's office.

- Sam: I've thought more about our discussion yesterday. Maybe something can be done about profits.
 Diago: I hope so. Our bonuses and stock value are riding on this period's performance.
 Sam: We've been recording intellectual revenues when new members sign up. Rather than recording liabilities at the time memberships are sold, I think we can justify recording sales revenue for all memberships sold.
 Diago: What will the effect be?
 Sam: I haven't run the numbers yet, but let's just say very favorable.

Required:

- Why do you think liabilities had been recorded previously?
- Is the proposal ethical?
- Who would be affected if the proposal is implemented?

The following Trueblood case is recommended for use with this chapter. The case provides an excellent opportunity for class discussion, group projects, and writing assignments. The case, along with Professor's Discussion Material, can be obtained from the Deloitte Foundation at its website: www.deloitte.com/us/troubleshooting.

Case 02-3: Frequent Flyer

This case gives students the opportunity to determine the accountability for product recall campaigns.

Domestic Transfer and Storage is a large trucking company headquartered in the Midwest. Rapid expansion in recent years has been financed in large part by debt in a variety of forms. In preparing the financial statements for 2007, questions have arisen regarding the way certain of the liabilities are to be classified in the company's classified balance sheet.

A meeting of several members of the accounting staff is scheduled for tomorrow, April 9, 2007. You are confident that this meeting will include the topic of debt classification. You want to appear knowledgeable at the meeting, but realizing it's been a few years since you have dealt with classification issues, you have sought out information you think relevant. Questionable liabilities in the company's fiscal year-end (January 31, 2007) include the following:

- \$5 million of 9% commercial paper is due on July 3, 2007. Management intends to roll over the paper on a long-term basis. In early April, 2007, Domestic negotiated a credit agreement with a commercial bank for up to \$12 million any time during the next three years, say borrowings from which will mature two years from the date of borrowing.
- \$7 million of 5% notes were issued on June 30, 2004. The notes are due on November 30, 2007. The company's movements in 2006 were classified as short-term.
- \$25 million of 10% notes were due on February 28, 2007. On February 21, 2007, the company issued 30-year, 9.4% bonds in a private placement to institutional investors.
- Recently, company management has considered reducing debt in favor of a greater proportion of equity financing. \$20 million of 2% bonds mature on July 31, 2007. Discussions with underwriters, which

began on January 4, 2007, resulted in a contractual arrangement on March 13 under which
 common shares will be sold in July for approximately \$20 million.

[illegible]

1950-1951 年 10 月 1 日 至 1951 年 10 月 31 日 止 的 工 作 总 结
 1950-1951 年 10 月 1 日 至 1951 年 10 月 31 日 止 的 工 作 总 结

$\frac{1}{k} \cdot \frac{1}{k^2} = \frac{1}{k^3}$

(The following are some examples of how the same word can have different meanings.)

[illegible][illegible]

Complication Case 12-11

• १९५३-५४: १००००० • १९५५-५६: १०००००

የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

1. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

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3. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

4. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

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6. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

7. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

8. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

9. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

10. የጥራት ማረጋገጫ ስርዓት ለማረጋገጥ የሚያስፈልጉትን ሰነዶች ለማግኘት ማስታወሻ ማድረግ፡

During 2016, Western experienced labor disputes at three of its plants. Management hopes an agreement will soon be reached. However negotiations between the Company and the unions have produced an acceptable settlement and, as a result, strikes are ongoing at these facilities since 2017. It is virtually certain that material costs will be incurred but the amount of possible costs

In accordance with a 2004 contractual agreement with A. J. Conder Company, Winans is entitled \$27 million for certain fees and expense reimbursements. These were written off as bad debts in 1999.

[illegible]

$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx = \frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx$

1. $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$
 2. $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$
 3. $\frac{1}{2} \frac{d}{dt} \int_{\mathbb{R}^n} |u|^2 dx = \int_{\mathbb{R}^n} u \Delta u dx = - \int_{\mathbb{R}^n} |\nabla u|^2 dx \leq 0$

the textile division. Legal counsel advised that it is reasonably possible that Western could end being an indispensable but material amount not expected to have a material adverse effect on Company's financial position.

Determine the appropriate means of reporting each situation.
 In a memo to the audit manager, address each problem, explain it, include any necessary

On March 20/07 meeting of Veeva Corporation's board of directors, a question arose as to the way in

obligation should be disclosed in the forthcoming financial statements for the year ended 12/31/01. A veteran board member brought to the meeting a draft of a disclosure note that had been prepared by her's office for inclusion in the annual report. Here is the note:

[illegible]

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

$$v_1 = \begin{pmatrix} 0 \\ -\frac{1}{2} \\ 1 \end{pmatrix}, v_2 = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}, v_3 = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}$$

"Where did we get the \$205,000 figure?" he asked. On being informed that this is the amount negotiated last month by company attorneys with the EPA, the director inquired, "Aren't we supposed to report a liability for that on additions to the note?"

Exploring whether Vollocks should report a liability in addition to the note, "How or why not? For full disclosure should anything be added to the disclosure note itself?"

Later in 2006, you and two other officers of Curbin Fabrications Corporation just returned from a meeting with officials of the City of Jackson. The meeting was unexpectedly favorable even though it culminated in a settlement with city authorities that required your company pay a total of \$475,000 to cover the cost of violations of city construction codes. Jackson had filed suit in November 2004 against Curbin Fabrications Corporation seeking civil penalties and injunctive relief for violations of city construction codes regarding earthquake damage standards. Alleged violations involved several construction projects completed during the previous three years. When the financial statements were issued in 2005, Curbin had not reached a settlement with state authorities, but legal counsel had advised the company that it was probable the ultimate settlement would be \$750,000 in penalties. The following entry had been recorded:

2005 12/31 2005 12/31

The final settlement, therefore, was a pleasant surprise. While returning from the meeting, your conversation turned to reporting the settlement on the 2006 financial statements. You drew the sheet out and were selected to write a memo to Janet Zeno, the financial vice president, advising the proper course of action.

Write the memo, include descriptions in any journal entries related to the change in amounts. Briefly describe other steps Curbin should take to report the settlement.

EDGAR, Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, acceptance, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. Form 10-K, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.

- Required:
1. Access EDGAR on the Internet using EdgeSight at <http://www.edgewise.com>.
 2. Search for a public company with which you are familiar. Access its most recent 10-K filing. Search it until you find the financial statements and related notes.
 3. Specifically, look for any contingencies reported in the disclosure notes. Identify the nature of the contingencies described and explain the reason(s) the item or items were or was not reported.
 4. Repeat requirements 2 and 3 for two additional companies.

Kevin Devilly is a new hire in the controller's office of Fleming Horse Products. Two events occurred in late 2006 that the company had not previously encountered. The events appear to affect two of the company's liabilities, but there is some disagreement concerning whether they also affect financial statements of prior years. Each change occurred during 2006 before any adjusting entries or closing entries were prepared. The tax rate for Fleming is 40% in all years.

- Fleming Horse Products introduced a new line of commercial awnings in 2005 that carry a one-year warranty against manufacturer's defects. Based on industry experience, warranty costs were expected to approximate 1% of sales. Sales of the awnings in 2005 were \$3,500,000. Accordingly, warranty expense and a warranty liability of \$35,000 were recorded in 2005. In late 2006 the company's claims experience was evaluated and it was determined that claims were far fewer than expected—2% of sales rather than 1%. Sales of the awnings in 2006 were \$4,000,000 and warranty expenditures in 2006 totaled \$91,000.
- In November 2004 the State of Minnesota filed suit against the company, seeking penalties for violations of clean air laws. When the financial statements were issued in 2005, Fleming had not reached a settlement with state authorities, but legal counsel advised Fleming that it was probable the company would have to pay \$200,000 in penalties. Accordingly, the following entry was recorded:

2005 12/31 2005 12/31

In 2006, a settlement was reached with state authorities to pay a total of \$330,000 in penalties.

Required:
Kevin's supervisor, perhaps unsure of the answer, perhaps wanting to test Kevin's knowledge, e-mails the message "Kevin, send me a memo on how we should handle our warranty warranty and that clean air suit."

Working to be accurate, Keren consults his reference materials. What will he find? Prepare the notes requested.

Read Write Think

Frequent Flyer Miles

• LO1 LO3

Many airlines offer a frequent flyer program under which passengers can earn free travel. Northwest Airlines Corporation described its program in a recent annual report.

Frequent Flyer Program (in part): The Air World Link loyalty program is designed to encourage and reward passengers for the additional miles flown on Northwest Airlines. The program is administered by the Air World Link program, which is a subsidiary of Northwest Airlines.

The program is a non-cash program. The program is designed to encourage and reward passengers for the additional miles flown on Northwest Airlines. The program is administered by the Air World Link program, which is a subsidiary of Northwest Airlines.

Northwest Airlines Corporation utilizes a number of estimates that are used to determine the liability associated with the frequent flyer program. The estimates are based on the number of miles flown by passengers and the number of miles required for a free flight.

The program is a non-cash program. The program is designed to encourage and reward passengers for the additional miles flown on Northwest Airlines. The program is administered by the Air World Link program, which is a subsidiary of Northwest Airlines.

| Current Liabilities | \$ in millions | |
|--|----------------|---------|
| | 2004 | 2003 |
| Air traffic liability | \$1,468 | \$1,277 |
| Accrued compensation and benefits | 1,095 | 950 |
| Air traffic payable | 565 | 540 |
| Collectible accounts | 135 | 1 |
| Accrued vacation pay | 267 | 241 |
| Other current liabilities | 417 | 405 |
| Current maturities of long-term debt | 696 | 661 |
| Current obligations under capital leases | 53 | 65 |
| | 4,497 | 4,279 |

Required

- Why does Northwest's frequent flyer program constitute a liability? Is the liability current, long-term, or both?
- Prepare journal entry appropriate to record the frequent flyer program liability.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that companies that produce or use certain hazardous substances be liable for the costs of cleaning up any contamination that results from a release of these substances. The Superfund program was established to provide for the cleanup of hazardous waste sites.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that companies that produce or use certain hazardous substances be liable for the costs of cleaning up any contamination that results from a release of these substances. The Superfund program was established to provide for the cleanup of hazardous waste sites.

Read World Case

13-74

Superfund Liability

• LO1 LO3

Note 9: Contingencies and Environmental Liabilities (in part)

A hazardous waste site was initially identified by a state environmental agency. It was determined that investigation was required for remedial action. Where such action was required, the extent of contamination at the site and the potential for future contamination were determined. The potential for future contamination was determined by the state environmental agency. The potential for future contamination was determined by the state environmental agency.

To assess the potential for future contamination, a study was conducted. The study was conducted by the state environmental agency. The study was conducted by the state environmental agency. The study was conducted by the state environmental agency.

The study was conducted by the state environmental agency. The study was conducted by the state environmental agency. The study was conducted by the state environmental agency.

Merck's expenditures for nondebtlike and noncurrent assets were \$30.3 million in 2004.

Required:

From an accounting perspective, what necessitated the accrual?

1. Why is the accrued expense different in 2004 from the year before?
2. Relying on the information provided by the disclosure note, re-create the journal entry Merck recorded to adjust the liability.

This was not Craig's first visit to the controller's corner office since being appointed for the senior accounting position in May. Because he'd been directed to bring with him his preliminary report on year-end adjustments, Craig presumed he'd done something wrong in preparing the report. That he had not was Craig's first surprise. His second surprise was his boss's request to reconsider one of the estimated expenses.

A B C Corporation was a new enterprise, specializing in plastic industrial furniture. All products carry a generous long-term warranty against manufacturer's defects. "Don't you think 4% of sales is a little high for our warranty expense estimate?" his boss wondered. After all, we're new at this. We have little experience with product introductions. Just get off the phone with Blankenship (the company president). He thinks we'll have trouble renewing our credit line with the profits we're projecting. The president's is

Required:

1. Should Craig follow his boss's suggestion?
2. Does revising the warranty estimate pose an ethical dilemma?
3. Who would be affected if the suggestion is followed?

The International Accounting Standards Board (IASB) seeks to minimize worldwide differences in accounting practices and the prevention of financial misstatement. The IASB has worked toward uniformity for many years, but harmonization has by no means been achieved. In the area of accounting for current liabilities and contingencies, significant differences exist from country to country. The differences impact the financial position and the ability of analysts to assess risk in countries where client benefits are significant.

Required:

Choose a country other than the United States and:

1. Locate a recent annual report of a non-U.S. company.
2. Determine the way that country reports current liabilities on its balance sheet. Include in your analysis:
 - a. Whether they are reported as a separate classification of liabilities or whether they are netted against current assets.
 - b. Whether and how details are reported in disclosure notes.
3. Determine the way that country reports contingencies. Include in your analysis:
 - a. Under what circumstances are loss contingencies accrued.
 - b. Whether gain contingencies can be accrued or reported in disclosure notes.

Hint: You can obtain copies of annual reports by contacting the investor relations department of the corporation, from a broadly placed broker, from EDGAR, the Electronic Data Gathering and Retrieval service of the SEC, through edgar.com/procedures.html, or often from the company's website.

ICM Foods Company is a large, primarily domestic, consumer foods company involved in the manufacture, distribution and sale of a variety of food products. Industry averages are derived from *Forbes' The Almanac of Business and Industrial Financial Ratios*. Following are the 2006 and 2005 comparative balance sheets for ICM. The financial data we use are from actual financial statements of a well-known corporation, but the company name used is fictitious and the numbers and dates have been modified slightly.

ICM FOODS COMPANY
Comparative Balance Sheets
Years Ended December 31, 2006 and 2005
(\$ in millions)

| | 2006 | 2005 |
|--------------------------------------|----------------|----------------|
| Assets | | |
| Current assets: | | |
| Cash | \$ 48 | \$ 142 |
| Accounts receivable | 347 | 320 |
| Marketable securities | 388 | — |
| Inventories | 414 | 474 |
| Prepaid expenses | 212 | 158 |
| Total current assets | \$1,679 | \$1,496 |
| Property, plant, and equipment (net) | 2,592 | 2,291 |
| Intangibles (net) | 800 | 843 |
| Other assets | 74 | 60 |
| Total assets | \$5,145 | \$4,690 |

| Liabilities and Shareholders' Equity | | |
|--|---------|---------|
| Current liabilities: | | |
| Accounts payable | \$ 254 | \$ 278 |
| Accrued liabilities | 493 | 493 |
| Notes payable | 518 | 115 |
| Current portion of long-term debt | 208 | 54 |
| Total current liabilities | \$1,473 | \$ 940 |
| Long-term debt | 534 | 724 |
| Deferred income taxes | 407 | 364 |
| Total liabilities | \$2,414 | \$2,028 |
| Shareholders' equity | | |
| Common stock | 180 | 180 |
| Additional paid-in capital | 21 | 63 |
| Retained earnings | 2,220 | 2,428 |
| Total shareholders' equity | \$2,421 | \$2,671 |
| Total liabilities and shareholders' equity | \$4,835 | \$4,699 |

Liquidity refers to a company's cash position and overall ability to obtain cash in the normal course of business. A company is said to be liquid if it has sufficient cash or is capable of converting its other assets to cash in a relatively short period of time so that currently maturing debts can be paid.

Here, we

1. Calculate the current ratio for FedEx for 2006. The average ratio for the stocks listed on the New York Stock Exchange in a comparable time period was 1.5. What information does your calculation provide as investor?
2. Calculate FedEx's acid-test or quick ratio for 2006. The ratio for the stocks listed on the New York Stock Exchange in a comparable time period was .80. What does your calculation indicate about its liquidity?

Answer: See 8
Regarding current
liabilities and liquidity

• 10

FedEx Corporation

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix B at the back of the book. At the end of its 2004 fiscal year, FedEx reported current liabilities of \$4.7 billion in its balance sheet.

Exercises

1. What are the four components of current liabilities?
Are current liabilities sufficient to cover current liabilities? What is the current ratio for 2004? How does the ratio compare with 2003?
2. FedEx reported accrued expenses among its current liabilities. What were the two largest accrued expenses in 2004 aside from "other"? What are accrued expenses and when does FedEx record them?

14

CHAPTER

Bonds and Long-Term Notes

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Identify the underlying characteristics of debt instruments and describe the basic approach in accounting for debt.
- LO2 Account for bonds issued at par, at a discount, or at a premium, recording interest at the effective rate or by the straight-line method.
- LO3 Characterize the accounting treatment of notes, including installment notes, issued for cash or for non-cash consideration.
- LO4 Describe the disclosures appropriate to long-term debt in its various forms.
- LO5 Record the early extinguishment of debt and its conversion into equity securities.

FINANCIAL REPORTING CASE



Service Leader, Inc.

The mood is both upbeat and focused on this cool October morning. Executives and board members of Service Leader, Inc., are meeting with underwriters and attorneys to discuss the company's first bond offering in its 20-year history. You are attending in the capacity of company controller and two-year member of the board of directors. The closely held corporation has been financed entirely by equity, internally generated funds, and short-term bank borrowings.

Bank rates of interest, though, have risen recently and the company's unexpectedly rapid, but welcome, growth has prompted the need to look elsewhere for new financing. Under consideration are 15-year, 6.25% first mortgage bonds with a

principal amount of \$70 million. The bonds would be callable at 103 any time after June 30, 2008, and convertible into Service Leader common stock at the rate of 35 shares per \$1,000 bond.

Other financing vehicles have been discussed in the past two months, including the sale of additional stock, nonconvertible bonds, and unsecured notes. This morning *The Wall Street Journal* indicates that market rates of interest for debt similar to the bonds under consideration are about 6.5%.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

1. What does it mean that the bonds are "first mortgage" bonds? What effect does that have on financing? (page 663)
2. From Service Leader's perspective, why are the bonds callable? What does that mean? (page 663)
3. How will it be possible to sell bonds paying investors 6.25% when other, similar investments will provide the investors a return of 6.5%? (page 665)
4. Would accounting differ if the debt were designated as notes rather than bonds? (page 675)
5. Why might the company choose to make the bonds convertible into common stock? (page 664)

Interest rate, coupon rate or nominal rate. Originally, interest is paid semiannually on scheduled interest dates beginning six months after the day the bonds are "dated."

The Bond Indenture

A specific promises made to bondholders are described in a document called a bond indenture. Because it would be impractical for the corporation to enter into a direct agreement with each of the many bondholders, the bond indenture is held by a trustee, usually a bank or other financial institution appointed by the issuing firm to represent the interests of the bondholders. If the company fails to live up to the terms of the bond indenture, the trustee may bring legal action against the company on behalf of the bondholders.

Most corporate bonds are debenture bonds. A debenture bond is secured only by the "full faith and credit" of the issuing corporation. No specific assets are pledged as security. Investors in debentures usually have the same standing as the firm's other general creditors. So, in the event of bankruptcy, debenture holders and other general creditors would be treated equally in repayment in the subordinated debenture, which as the name implies, is not entitled to receive full payment paritatis with the claims of other specified debt holders are satisfied.

4. A mortgage bond, on the other hand, is backed by a lien on specified real estate owned by the issuer. Because a mortgage bond is considered less risky than debentures, it typically commands a lower interest rate.

Today most American bonds are registered bonds. Interest checks are mailed directly to the owner of the bond whose name is registered with the issuing company. Y-axis 1900 was not for bonds to be structured as coupon bonds (sometimes called *bearer bonds*). The role of the owner of a coupon bond was not registered. Instead, to collect interest on a coupon bond the holder actually clipped an attached coupon and redeemed it in accordance with instructions in the indenture. A carryover effect of this practice is that we still often see the term *coupon rate* in reference to the stated interest rate of bonds.

They are not always referred to as "gold-ear" (yellow) species for mature males. The immature males are usually provided for their reproduction through a number of features, by sexual pay-off, through nuptial and/or parental care, or by co-operation.

When a company issues a callable bond, the issuer has the right to "call" or redeem the bond before its scheduled maturity date. The feature allows an issuing company to buy back, or call, outstanding bonds from bondholders before their scheduled maturity date. This feature affords the company some protection against being stuck with relatively high, fixed interest rates if interest rates fall during the period to maturity. The call must be exercised and then exceeds the bond's face amount, a call premium, thereby decreasing the company's cash flow.

4 sample balloons were used to enhance & argue that included his Postscript
exposure

For example, a 10% effective interest rate after discounting on 100 million debentures are callable at a sinking fund 125% of face and would effectively be 10% on the

So-called "probation" usually prohibits a husband during the first two years of a bond's life from calling in the maturity. That is the corporate bond issuer's way of insuring the bonds on a piece-by-piece, year-by-year basis. Bonus requiring such sales and redemptions often are used to keep funds *defensive*.

The sinking fund typically is administered by a trustee, who repurchases bonds in the market. If insufficient willing sellers are found, the trustee must exercise the bonds' call right to buy the required amount of bonds, using a lottery approach to select bonds for call. *Essentially, a sinking fund is a series of bond calls.*

Subordinated bonds are secured in various ways during at least part of the life of the issue. Subordinated bonds are generally repaid prior to the 40-year senior issue. Subordinated debt may be assigned to specific portions of the bond issue.

A **bond indenture** describes the specific promises made to bondholders.

liquidation rights
shareholders
to be a shareholder of a

FINANCIAL REPORTING CASE

Q. 2. 56.

FINANCIAL REPORTING CASE

Q. 2. 50

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Convertible bonds are retired as a consequence of bondholders choosing to convert them into shares of stock. We look closer at convertible bonds a little later in the chapter.

Recording Bonds at Issuance

LO2

Bonds represent a liability to the corporation that issues the bonds and an asset to a company that buys the bonds as an investment. The basic of the transaction is the mirror image of the other. This is demonstrated in Illustration 14-1.

ILLUSTRATION 14-1
Bonds Sold at Face Amount

On January 1, 2006, Masterwear Industries issued \$700,000 of 2% bonds. Interest of \$42,000 is payable semiannually on June 1 and December 1. The bonds mature in three years at a total liability of \$700,000 plus the plus amount. Therefore, the bonds were sold in a private placement of \$700,000 plus the plus amount.

At Issuance (January 1)

| Masterwear (Issuer) | |
|------------------------------------|---------|
| Cash | 700,000 |
| Bonds payable (face amount) | 700,000 |
| United (Investor) | |
| Investment in bonds | 700,000 |
| Cash (price plus accrued interest) | 700,000 |

BONDS ISSUED BETWEEN INTEREST DATES

We assumed that the bonds in the previous example were sold on the day they were due (date printed in the indenture contract). But suppose a weak market caused a delay in selling the bonds until two months after that date (four months before semiannual interest was due paid). In that case, the buyer would be asked to pay the seller accrued interest on six months in addition to the price of the bonds. For illustration, assume Masterwear was asked to sell the bonds in the previous example until March 1—two months after they are due. This variation is shown in Illustration 14-1A. United would pay the price of the bonds (\$700,000) plus \$14,000 accrued interest:

| | | | | | | |
|-------------|---|-------------|---|-------------------------------|---|------------------|
| \$700,000 | × | 2% | × | $\frac{1}{2}$ | = | \$14,000 |
| Face amount | | Annual rate | | Fraction of the annual period | | Accrued interest |

All bonds sell at their price plus any interest accrued from the last interest date.

ILLUSTRATION 14-1A
Bonds Sold at Face Amount between Interest Dates

At Issuance (March 1)

| Masterwear (Issuer) | |
|---|---------|
| Cash (price plus accrued interest) | 714,000 |
| Bonds payable (face amount) | 700,000 |
| Interest payable (accrued interest determined above) | 14,000 |
| United (Investor) | |
| Investment in bonds (face amount) | 700,000 |
| Interest receivable (accrued interest determined above) | 14,000 |
| Cash (price plus accrued interest) | 714,000 |

When Masterwear pays semiannual interest on June 30, a full six months' interest is paid. But having received two months' accrued interest in advance, Masterwear's net interest expense will be four months' interest for the four months the bonds have been outstanding at that time. Likewise, when United receives six months' interest—after holding the bonds only four months—United will net only the four months' interest in which it is entitled

You would call from Chapter 14 the proceeds of the bonds sold at a premium. The proceeds of the bonds sold at a premium would be the face amount of the bonds plus the premium. The proceeds of the bonds sold at a discount would be the face amount of the bonds minus the discount.



At the First Interest Date (June 30)

Mesterwear (Issuer)

Interest expense (6 mo. 2 mo. = 8 mo.) + 10% = 26,000
 Interest payable (accrued interest determined above)
 Cash (100,000 - 74,000) = 26,000

26,000

42,000

United Investors

Interest receivable (6 mo. 2 mo. = 8 mo.) + 10% = 26,000
 Interest receivable (accrued interest determined above)
 Cash (100,000 - 58,000) = 42,000

26,000

42,000

DETERMINING THE SELLING PRICE

The price of a bond issue at any particular time is not necessarily equal to its face amount. In \$700,000, 12% bond issue in the previous illustration, for example, may sell for more or less than face amount (at a premium or at a discount), depending on how the 12% return stacks up with the prevailing market rate of interest at the time (for securities of similar risk and maturity). For instance, if the 12% bonds are competitive in a market in which similar bonds are providing a 14% return, the bonds could be sold at a price less than \$700,000. On the other hand, if the market rate is only 10%, the 12% bond rate would seem relatively attractive and the bonds would sell at a premium over face amount. The resulting price would be determined by the market rate, resulting in a discount or premium. The interest rate and the price of the bond are established at the time the issue is sold in the market.

In addition to the characteristic terms of a bond agreement as specified in the indenture, the market rate for a specific bond issue is influenced by the creditworthiness of the company selling the bonds. To evaluate the risk and quality of an individual bond issue, investors rely heavily on bond ratings provided by Standard & Poor's Corporation and by Moody's Investors Service, Inc. See the bond ratings in Graphic 14-1.

When the market rate is well above the bond rate, the bonds will sell at a discount. When the market rate is below the bond rate, the bonds will sell at a premium. When the market rate is equal to the bond rate, the bonds will sell at face value.

The market rate is determined by the supply and demand for bonds. For example, if the market rate is 14% and the bond rate is 12%, the bonds will sell at a discount.

FINANCIAL REPORTING CASE

Case 14-1

When the market rate is well above the bond rate, the bonds will sell at a discount. When the market rate is below the bond rate, the bonds will sell at a premium. When the market rate is equal to the bond rate, the bonds will sell at face value.

| | S&P | Moody's |
|--------------------------|-----|---------|
| Investment Grades | | |
| High | AAA | Aaa |
| High | AA | Aa |
| Medium | A | A |
| Minimum investment grade | BBB | Baa |
| Junk Ratings | | |
| Speculative | BB | Ba |
| Lower speculative | B | B |
| Default or near default | CCC | Caa |
| | C | C |
| | D | |

Source: Standard & Poor's Ratings, Inc. and Moody's Investors Service, Inc. (2010). Standard & Poor's Ratings, Inc. (2010).

When the market rate is well above the bond rate, the bonds will sell at a discount. When the market rate is below the bond rate, the bonds will sell at a premium. When the market rate is equal to the bond rate, the bonds will sell at face value.



When the market rate is well above the bond rate, the bonds will sell at a discount. When the market rate is below the bond rate, the bonds will sell at a premium. When the market rate is equal to the bond rate, the bonds will sell at face value.

GRAPHIC 14-1
Bond Ratings*

A bond will be priced by the market to yield the market rate of interest for securities of similar risk and maturity.

Forces of supply and demand cause a bond issue to be priced to yield the market rate of interest. An investor paying that price will earn an effective rate of return on the investment equal to the market rate. The price is calculated as the present value of all future cash flows required of the bonds, where the discount rate used in the present value calculation is the market rate. Specifically, the price will be the present value of the periodic interest payments plus the present value of the principal payable at maturity, both discounted at the market rate.

Bonds priced at a discount are described in Illustration 14-2.

ILLUSTRATION 14-2

Bonds Sold at a Discount

Because the interest to be received is less than the amount of the cash to be paid out, the bonds will be sold at a discount. The market rate of interest is 4%, and the bonds will be sold at a price of \$666,633.

On January 1, 2006, Masterwear Industries issued \$700,000 of 12% bonds dated January 1, 2006, to maturity on January 1, 2008. The bonds mature in three years. The market yield for similar bonds is 4%. The entire bond issue was purchased by United Interiors, Inc.

Calculation of the Price of the Bonds

| | | Present Value |
|------------------------------------|------------------------------|---------------|
| Interest | $\$42,000 \times 4.76654^*$ | \$200,795 |
| Principal | $\$700,000 \times 0.66634^*$ | \$466,438 |
| Present value (price) of the bonds | | \$666,633 |

*These values are obtained by multiplying the present value of \$1 by the market rate of 4% for the number of periods. For example, \$42,000 is multiplied by 4.76654 to obtain the present value of the interest payments. The discount is the difference between the face amount of the bonds and the present value of the bonds.

The calculation is illustrated in Graphic 14-2.

GRAPHIC 14-2

Cash Flows from a Bond Issue

Because of the time value of money, the present value of the future cash flows is less than \$952,000.

Dates of Cash Flows

| | | |
|----------------------|-----------|-------------------------------------|
| 1. June 30, 2006 | \$42,000 | |
| 2. December 31, 2006 | 42,000 | |
| 3. June 30, 2007 | 42,000 | |
| 4. December 31, 2007 | 42,000 | |
| 5. June 30, 2008 | 42,000 | |
| 6. December 31, 2008 | 42,000 | |
| | \$252,000 | |
| | | Total Future Cash Flows = \$952,000 |

Although the cash flows total \$952,000, the present value of those future cash flows as of January 1, 2006, is only \$666,633. This is due to the time value of money.

Journal Entries at Issuance of Bonds Sold at a Discount

| | | |
|--|---------|---------|
| Masterwear (Issuer) | | |
| Cash (price calculated above) | 666,633 | |
| Discount on bonds payable (difference) | 33,367 | |
| Bonds payable (face amount) | | 700,000 |
| United Interiors (Investor) | | |
| Investment in bonds (face amount) | 700,000 | |
| Discount on bond investment (difference) | | 33,367 |
| Cash (price calculated above) | | 666,633 |

When bond prices are quoted in financial media, they typically are stated in terms of a percentage of face amount. Thus, a price quote of 98 means a \$1,000 bond will sell for \$980; a bid priced at 101 will sell for \$1,010.

Determining Interest—Effective Interest Method

One accrues on an outstanding debt at a constant rate over the debt's term period. Or, one accrues under the concept of accretion by varying the period's effective interest on an affected high time at which the cash interest actually is paid. Recording interest each period as the market rate of interest multiplied by the outstanding balance of the debt (during the first period) is referred to as the **effective interest method**. Although giving this name to the effective interest method implies some specialized procedure, this simply is an extension of the accrual concept, consisting with accruing all expenses as they are incurred. Continuing our example, we determined that the amount of debt when the bonds are issued is \$700,000. The effective interest rate is 4% and is recorded as expense to the issuer and revenue to the investor for the first six-month interest period as follows:

| | | | | |
|---------------------|---|----------------|---|--------------------|
| \$700,000 | × | 4% | = | \$28,000 |
| Outstanding balance | | Effective rate | | Effective interest |

However, the bond indenture calls for semiannual interest payments of only \$42,000—the 6% times the face amount, \$700,000. As always, when only a portion of an expense paid, the remainder becomes a liability. In this case, the addition to the already outstanding liability for the difference of \$14,000 increases the liability and is reflected as a portion of the discount (a valuation account). This is illustrated in Graphic 14-3.

Interest accrues on the outstanding debt at the effective rate. Interest paid is the amount received in the form of interest—the stated rate times the face amount. These amounts and the change in the outstanding debt are recorded as follows:

| | Account Balances | | | |
|--------------------------|---------------------|-----------------------------|--------|---------------------------|
| | Outstanding Balance | Bonds Payable (face amount) | | Discount on Bonds Payable |
| January 1 | \$700,000 | \$700,000 | credit | \$0 |
| Interest accrued at 4% | | | | |
| Portion of interest paid | | | | |
| June 30 | \$714,000 | \$700,000 | debit | \$14,000 |

At the First Interest Date (June 30)

| | |
|---|--------|
| Masterwear (Issuer) | |
| Interest expense (market rate × outstanding balance) | 46,400 |
| Debit to Interest Payable (face amount × stated rate) | 42,000 |
| Cash (stated rate × face amount) | 42,000 |
| Credit to Premium | 4,400 |
| Interest revenue (market rate × outstanding balance) | 46,400 |

Because the balance of the debt changes each period, the dollar amount of interest (balance × rate) also will change each period. To keep up with the changing amounts, it usually is convenient to prepare a schedule that reflects the changes in the debt over its term to maturity. An amortization schedule for the situation under discussion is shown in Graphic 14-4.

Amounts for the journal entries each interest date are found in the first three columns of the schedule. Traditionally, this schedule has been referred to as an **amortization schedule**—a

The effective interest method is used to determine the amount of interest expense to be recorded each period. The amount of interest expense is calculated by multiplying the outstanding balance of the debt by the effective interest rate.

GRAPHIC 14-3
Change in Debt When Effective Interest Exceeds Cash Paid

The unpaid portion of the cash interest payment increases the liability.

The effective interest method is used to determine the amount of interest expense to be recorded each period.

The amount of interest expense is calculated by multiplying the outstanding balance of the debt by the effective interest rate. The amount of interest expense is recorded as a debit to Interest Expense and a credit to Interest Payable. The amount of cash paid is recorded as a debit to Cash and a credit to Interest Payable.

GRAPHIC 14-4
Amortization
Schedule—Discount

| Date | Cash
Interest
16%
Face amount | Effective
Interest
7%
Outstanding balance) | Increase in
Balance
(Discount
reduction) | Outstanding
Balance |
|----------|--|---|---|------------------------|
| 1/1/06 | | | | 666,633 |
| 6/30/06 | 42,000 | 07.6% 637 = 46,664 | 5,336 | 671,969 |
| 12/31/06 | 42,000 | 07.6% 29 = 46,921 | 4,921 | 676,890 |
| 6/30/07 | 42,000 | 07.6% 2881 = 47,340 | 5,340 | 681,628 |
| 12/31/07 | 42,000 | 07.6% 623 = 47,774 | 5,774 | 687,342 |
| 6/30/08 | 42,000 | 07.6% 342 = 48,114 | 6,114 | 693,456 |
| 12/31/08 | 42,000 | 07.6% 450 = 48,544 | 6,544 | 700,000 |
| | 252,000 | 285,367 | 33,367 | |

Rounded.

reference to alleged amortization of the discount.³ This is an apparent controversy from earlier days when the discount was considered to be an asset to be amortized. To the contrary, the discount is a valuation account, having no existence apart from the related debt. As you learned in the previous paragraphs, changes in its balance are the derived result of changes in the outstanding debt, when portions of periodic accrued interest go unpaid.⁴

However, because this terminology is so prevalent in practice, we too will use the label *amortization schedule*. Be sure to realize, though, that this label is a misnomer—nothing is being amortized. The essential point to remember is that the effective interest method is a straightforward application of the accrual concept whereby interest expense (or revenue) is accrued periodically at the effective rate. It involves neither deferring expenses (or revenues) nor amortizing deferrals.

Determining interest in this manner has a convenient side effect. It results in reporting the liability at the present value of future cash payments—the appropriate valuation method for any liability.⁵ This is obvious at issuance: we actually calculated the present value to be \$666,633. What perhaps is not quite as obvious is that the outstanding amount of debt each subsequent period (shown in the right-hand column of the amortization schedule) is still the present value of the remaining cash flows, discounted at the original rate.

Terms such as *unamortized* or *deferred discount* or *premium* only to amortize discount or premium are components from the days when debt discount was considered to be an amortizable asset and do not describe accurately either the amount of a liability or amount involved in the interest method of accounting for them.⁶

ADDITIONAL CONSIDERATION

Although the reported amount each period is the **present value** of the bonds at any date after issuance, this amount is not necessarily equal to the **market value** of the bonds. This is because the **market rate** of interest will not necessarily remain the same as the rate implicit in the original issue price (the effective rate). Of course, for negotiable financial instruments, the issue price is the market price at any given time. Differences between market values and present values based on the original rate are holding gains and losses. If we were to use the market rate to revalue bonds on each reporting

³And Eassey (1968) suggests that amortization of the discount is a process of holding an asset or liability for periods when there is no cash flow.

⁴Or, as we saw later, the debt changes when periodic interest is unpaid. This occurs when debt is held at a premium, rather than at a discount.

⁵Statements of Financial Accounting Standards Board, *Statement of Financial Accounting Concepts No. 6*, par. 36, Stamford, Conn.: FASB, 1985, par. 25.

⁶Interest on Receivables and Payables. AICPA, *GAAP*, New York: AICPA, 1973.

one—that is, recalculate the present value using the market rate—the reported amount always would be the market value. Some accountants contend that reporting market values and resultant holding gains and losses would provide more meaningful information than reporting debt at its present value, discounted at the original rate. Reporting debt at market values is not presently permitted by GAAP except in certain specialized industries like the mutual fund and insurance industries. Certainly the market value of existing debt is informative, considered a management or refinancing decision.

ZERO-COUPON BONDS

A zero-coupon bond pays no interest. Instead, it offers a return in the form of a “deep discount” from the face amount. For illustration, let’s look at the zero-coupon bonds offered by General Mills, Inc. in 2002. Two billion, two hundred thirty million dollars face amount of the 20-year securities sold for \$1,901 million. As the interest rate schedule in Graphic 14-5 illustrates, they were priced to yield 2%.

| Period (years) | Cash Interest
Rate | Effective Interest
Rate | Change in
Balance | Outstanding
Balance ^a |
|----------------|-----------------------|----------------------------|--------------------------|-------------------------------------|
| | Rate | Rate | Discount
Amortization | |
| 0 | 2% | 0% | 0 | 50 |
| 1 | 2% | 0.2% | 3.1 | 53.1 |
| 2 | 2% | 0.4% | 6.2 | 56.3 |
| 3 | 2% | 0.6% | 9.3 | 59.6 |
| 4 | 2% | 0.8% | 12.5 | 62.9 |
| 5 | 2% | 1.0% | 15.7 | 66.2 |
| 6 | 2% | 1.2% | 18.9 | 69.5 |
| 7 | 2% | 1.4% | 22.1 | 72.7 |
| 8 | 2% | 1.6% | 25.3 | 76.0 |
| 9 | 2% | 1.8% | 28.5 | 79.3 |
| 10 | 2% | 2.0% | 31.7 | 82.5 |
| 11 | 2% | 2.2% | 34.9 | 85.8 |
| 12 | 2% | 2.4% | 38.1 | 89.1 |
| 13 | 2% | 2.6% | 41.3 | 92.4 |
| 14 | 2% | 2.8% | 44.5 | 95.7 |
| 15 | 2% | 3.0% | 47.7 | 99.0 |
| 16 | 2% | 3.2% | 50.9 | 102.2 |
| 17 | 2% | 3.4% | 54.1 | 105.5 |
| 18 | 2% | 3.6% | 57.3 | 108.8 |
| 19 | 2% | 3.8% | 60.5 | 112.1 |
| 20 | 2% | 4.0% | 63.7 | 115.4 |
| 21 | 2% | 4.2% | 66.9 | 118.7 |
| 22 | 2% | 4.4% | 70.1 | 122.0 |
| 23 | 2% | 4.6% | 73.3 | 125.3 |
| 24 | 2% | 4.8% | 76.5 | 128.6 |
| 25 | 2% | 5.0% | 79.7 | 131.9 |
| 26 | 2% | 5.2% | 82.9 | 135.2 |
| 27 | 2% | 5.4% | 86.1 | 138.5 |
| 28 | 2% | 5.6% | 89.3 | 141.8 |
| 29 | 2% | 5.8% | 92.5 | 145.1 |
| 30 | 2% | 6.0% | 95.7 | 148.4 |
| 31 | 2% | 6.2% | 98.9 | 151.7 |
| 32 | 2% | 6.4% | 102.1 | 155.0 |
| 33 | 2% | 6.6% | 105.3 | 158.3 |
| 34 | 2% | 6.8% | 108.5 | 161.6 |
| 35 | 2% | 7.0% | 111.7 | 164.9 |
| 36 | 2% | 7.2% | 114.9 | 168.2 |
| 37 | 2% | 7.4% | 118.1 | 171.5 |
| 38 | 2% | 7.6% | 121.3 | 174.8 |
| 39 | 2% | 7.8% | 124.5 | 178.1 |
| 40 | 2% | 8.0% | 127.7 | 181.4 |
| 41 | 2% | 8.2% | 130.9 | 184.7 |
| 42 | 2% | 8.4% | 134.1 | 188.0 |
| 43 | 2% | 8.6% | 137.3 | 191.3 |
| 44 | 2% | 8.8% | 140.5 | 194.6 |
| 45 | 2% | 9.0% | 143.7 | 197.9 |
| 46 | 2% | 9.2% | 146.9 | 201.2 |
| 47 | 2% | 9.4% | 150.1 | 204.5 |
| 48 | 2% | 9.6% | 153.3 | 207.8 |
| 49 | 2% | 9.8% | 156.5 | 211.1 |
| 50 | 2% | 10.0% | 159.7 | 214.4 |
| 51 | 2% | 10.2% | 162.9 | 217.7 |
| 52 | 2% | 10.4% | 166.1 | 221.0 |
| 53 | 2% | 10.6% | 169.3 | 224.3 |
| 54 | 2% | 10.8% | 172.5 | 227.6 |
| 55 | 2% | 11.0% | 175.7 | 230.9 |
| 56 | 2% | 11.2% | 178.9 | 234.2 |
| 57 | 2% | 11.4% | 182.1 | 237.5 |
| 58 | 2% | 11.6% | 185.3 | 240.8 |
| 59 | 2% | 11.8% | 188.5 | 244.1 |
| 60 | 2% | 12.0% | 191.7 | 247.4 |
| 61 | 2% | 12.2% | 194.9 | 250.7 |
| 62 | 2% | 12.4% | 198.1 | 254.0 |
| 63 | 2% | 12.6% | 201.3 | 257.3 |
| 64 | 2% | 12.8% | 204.5 | 260.6 |
| 65 | 2% | 13.0% | 207.7 | 263.9 |
| 66 | 2% | 13.2% | 210.9 | 267.2 |
| 67 | 2% | 13.4% | 214.1 | 270.5 |
| 68 | 2% | 13.6% | 217.3 | 273.8 |
| 69 | 2% | 13.8% | 220.5 | 277.1 |
| 70 | 2% | 14.0% | 223.7 | 280.4 |
| 71 | 2% | 14.2% | 226.9 | 283.7 |
| 72 | 2% | 14.4% | 230.1 | 287.0 |
| 73 | 2% | 14.6% | 233.3 | 290.3 |
| 74 | 2% | 14.8% | 236.5 | 293.6 |
| 75 | 2% | 15.0% | 239.7 | 296.9 |
| 76 | 2% | 15.2% | 242.9 | 300.2 |
| 77 | 2% | 15.4% | 246.1 | 303.5 |
| 78 | 2% | 15.6% | 249.3 | 306.8 |
| 79 | 2% | 15.8% | 252.5 | 310.1 |
| 80 | 2% | 16.0% | 255.7 | 313.4 |
| 81 | 2% | 16.2% | 258.9 | 316.7 |
| 82 | 2% | 16.4% | 262.1 | 320.0 |
| 83 | 2% | 16.6% | 265.3 | 323.3 |
| 84 | 2% | 16.8% | 268.5 | 326.6 |
| 85 | 2% | 17.0% | 271.7 | 329.9 |
| 86 | 2% | 17.2% | 274.9 | 333.2 |
| 87 | 2% | 17.4% | 278.1 | 336.5 |
| 88 | 2% | 17.6% | 281.3 | 339.8 |
| 89 | 2% | 17.8% | 284.5 | 343.1 |
| 90 | 2% | 18.0% | 287.7 | 346.4 |
| 91 | 2% | 18.2% | 290.9 | 349.7 |
| 92 | 2% | 18.4% | 294.1 | 353.0 |
| 93 | 2% | 18.6% | 297.3 | 356.3 |
| 94 | 2% | 18.8% | 300.5 | 359.6 |
| 95 | 2% | 19.0% | 303.7 | 362.9 |
| 96 | 2% | 19.2% | 306.9 | 366.2 |
| 97 | 2% | 19.4% | 310.1 | 369.5 |
| 98 | 2% | 19.6% | 313.3 | 372.8 |
| 99 | 2% | 19.8% | 316.5 | 376.1 |
| 100 | 2% | 20.0% | 319.7 | 379.4 |

^a The interest expense here is calculated because the underlying calculations are based on the effective rate.

Graphic 14-5

Zero-Coupon
Securities—General
Mills, Inc.

Zero-coupon bonds provide us a convenient opportunity to reinforce a key concept we learned: that we accrue the interest expense (or revenue) each period at the effective rate regardless of how much cash interest actually is paid (zero in this case). An advantage of issuing zero-coupon bonds or notes is that the corporation can deduct for tax purposes the annual interest expense (see schedule) but has no related cash outflow until the bonds mature. However, the reverse is true for investors in “zeros.” Investors receive no periodic cash income, even though annual interest revenue is reportable for tax purposes. So those who invest in zero-coupon bonds usually have tax-deferred or tax-exempt status, such as pension funds, individual retirement accounts (IRAs), and charitable organizations. Zero-coupon bonds and notes are gaining popularity but still constitute a relatively small proportion of corporate debt.

BONDS SOLD AT A PREMIUM

In Illustration 14-2, Masterwear Industries sold the bonds at a price that would yield an effective rate higher than the stated rate. The result was a discount. On the other hand, if the bonds had been issued when the market yield for bonds of similar risk and maturity was lower than the stated rate, say 10%, the issue would have been priced at a premium. Because the 12% rate would seem relatively attractive in a 10% market, the bonds would command a true price of more than \$700,000, calculated in Illustration 14-3.

ILLUSTRATION 14-3**Bonds Sold at a Premium**

Because interest is paid semiannually, the present value calculations use:

- a. semiannual stated rate: 6
- b. one-half the market rate: 5 and 6/2 = 3
- c. semiannual periods: 6

On January 1, 2006, Masterwear Industries issued \$700,000 of 7% bonds dated January 1, 2006, that mature on January 1, 2009. The bonds mature in three years. The market yield for bonds of similar risk and maturity is 6%. The entire bond issue was purchased by United Intergroup, Inc.

Calculation of the Price of the Bonds

| | | | Present Values |
|------------------------------------|-----------|----------|----------------|
| Interest | \$42,000 | 5.07569* | \$2,132.79 |
| Principal | \$700,000 | 0.74622* | \$522,354 |
| Present value (price of the bonds) | | | \$524,487 |

*Present value factors from Table A-2, Appendix A, for 6% interest rate and 6 periods.

Journal Entries at Issuance: Bonds Sold at Premium

| | | |
|-----------------------------------|---------|---------|
| Masterwear (Issuer) | | |
| Cash (price calculated above) | 524,487 | |
| Premium (face amount) | | 700,000 |
| Premium (market yield difference) | | 30,513 |
| United Intergroup | | |
| Investment in Bonds | 524,487 | |
| Premium | | 700,000 |
| Premium | | 30,513 |

Interest on bonds sold at a premium is determined in precisely the same manner as on bonds sold at a discount. Again, interest is the effective interest rate applied to the debt outstanding during each period (balance at the end of the previous interest period), and the cash paid is the stated rate times the face amount, as shown in Graphic 14-6.

GRAPHIC 14-6**Amortization Schedule—Premium**

Since more cash is paid each period than the effective interest, the debt amortizing is incurred by the overpayment.

| Date | Cash Interest
(\$42,000) | Effective Interest
(\$25,513) | Decrease in Balance
(Premium reduction) | Outstanding Balance |
|----------|-----------------------------|----------------------------------|--|---------------------|
| 1/1/06 | | | | 700,000 |
| 6/30/06 | 42,000 | 25,513 | 16,487 | 683,513 |
| 12/31/06 | 42,000 | 25,373 | 16,627 | 666,886 |
| 6/30/07 | 42,000 | 25,228 | 16,772 | 650,114 |
| 12/31/07 | 42,000 | 25,088 | 16,912 | 633,202 |
| 6/30/08 | 42,000 | 24,943 | 17,057 | 616,145 |
| 12/31/08 | 42,000 | 24,793 | 17,207 | 598,938 |
| Total | 252,000 | 126,467 | 125,533 | |

*Rounded.

Notice that the debt declines each period. This is because the effective interest, which is less than the cash interest paid, The overpayments each period reduce the amount owed. Remember, this is precisely the opposite of when debt is sold at a discount, where the effective interest each period is more than the cash paid, and the underpayment is reflected in the amount owed.

ADDITIONAL CONSIDERATION

The preceding illustrations describe bonds sold at a discount and at a premium. The same concepts apply to bonds sold at face amount. But none of the procedures would be unnecessary. For instance, calculating the present value of the interest and the principal always will give us the face amount when the effective and the stated rate are the same.

Calculation of the Price of the Bonds

| | | | Present Values |
|------------------------------------|-----------|-------------------|----------------|
| Interest | \$42,700 | $\times .32^*$ | \$208,528 |
| Principal | \$700,000 | $\times .70496^*$ | 493,472 |
| Present value (price) of the bonds | | | \$702,000 |

*Find it on a table of ordinary annuities. $\times .32$ is $\times 32\%$.
 $\times .70496$ is $\times 70.496\%$.

WHEN FINANCIAL STATEMENTS ARE PREPARED BETWEEN INTEREST DATES

When an accounting period ends between interest dates, it is necessary to record interest that has accrued since the last interest date. As an example, refer again to Illustration 14-2 on page 866. If the fiscal year of Masterwear and United ends on October 31 and interest was last paid and recorded on June 30, four months' interest must be accrued to a year-end adjusting entry. Because interest is recorded for only a portion of a semiannual period, amounts recorded are simply the amounts shown in the amortization schedule (Exhibit 14-4, p. 863) for the appropriate fraction of the semiannual period. It is $4/6$ or $2/3$.

At October 31

| | | | |
|---|--|-------|--------|
| Masterwear (Issuer) | | | |
| Interest payable $2/3 \times \$6,667$ | | 3,337 | |
| Premium on bonds payable $2/3 \times \$4,000$ | | | 3,327 |
| Interest payable $2/3 \times \$42,700$ | | | 28,900 |
| Interest expense $2/3 \times \$42,700$ | | | 28,900 |
| | | 33 | |

Adjusting Entries—To Accrue Interest

It is important to understand the impact on the financial statements that accrual of interest has. The amount of interest is recorded at the end of the reporting period.

Four months later, when semiannual interest is paid next, the remainder of the semiannual interest is a liability on the first day of the next accounting year—November 1 and outside:

At the December 31 Interest Date

| | | | |
|---|--------|--------|--------|
| Masterwear (Issuer) | | | |
| Interest expense $2/3 \times \$6,667$ | 15,564 | | |
| Interest payable from adjusting entry | | 28,900 | |
| Premium on bonds payable $2/3 \times \$4,000$ | | | 664 |
| Interest payable $2/3 \times \$42,700$ | | | 28,900 |
| Interest expense $2/3 \times \$42,700$ | | | 28,900 |
| | | 33 | |

If the date of the adjustment is paid on the first day of the next accounting year, the amount of interest payable is a liability on the first day of the year.

The Straight-Line Method—A Practical Expediency

In some circumstances, the professional firm is an exception to the conventionally appropriate method of determining interest for bond issues. A company is allowed to determine interest indirectly by allocating a discount or a premium on a straight-line basis over the term of the bonds. This method is not materially different from the usual indirect interest method. The discount should be amortized by whatever the straight-line method would tend to mislead investors and creditors in the particular circumstances.

By the straight-line method, the discount in Illustration 14-2 and Graphic 14-4 would be allocated equally over the six semiannual periods (three years).

\$45,367.60 bonds = \$7,561.27 per period

**Journal Entries
Straight-Line Method**

By the straight-line method, interest expense and premium amortization are allocated equally over the six periods of the discount reduction.

At Each of the Six Interest Dates

| Masterman (Issuer) | |
|--|--------|
| Interest expense (to balance) | 47,561 |
| Discount on bonds payable (discount 6 periods) | |
| Cash (premium amortization) | 4,000 |
| United Investor | |
| Cash | 47,561 |
| Interest income | 47,561 |

Allocating the discount or premium equally over the life of the bonds by the straight-line method results in a constant dollar amount of interest each period. An amortization schedule, then, would serve little purpose. For example, if we prepared one for the straight-line method in this situation, it would provide the same amounts each period as shown in Graphic 14-7.

Graphic 14-7
Amortization
Schedule—Straight-
Line Method

By the straight-line method, the amount of the discount is amortized equally over the six periods, and the recorded interest is the principal plus the

| | Cash
Interest | Recorded
Interest | Increase in
Balance | Outstanding
Balance |
|--------|-------------------|----------------------------|------------------------|------------------------|
| | 6%
Face amount | Cash
Interest reduction | | |
| 1/1/06 | | | | 100,000 |
| 7/1/06 | 42,000 | 42,000 | 47,561 | 87,439 |
| 1/1/07 | 42,000 | 42,000 | 47,561 | 74,878 |
| 7/1/07 | 42,000 | 42,000 | 47,561 | 62,317 |
| 1/1/08 | 42,000 | 42,000 | 47,561 | 49,756 |
| 7/1/08 | 42,000 | 42,000 | 47,561 | 37,195 |
| 1/1/09 | 42,000 | 42,000 | 47,561 | 24,634 |
| 7/1/09 | 42,000 | 42,000 | 47,561 | 12,073 |
| 1/1/10 | 42,000 | 42,000 | 47,561 | 0 |
| | 252,000 | 252,000 | 285,366 | |

*Rounded.

Definitively, the cash by amortizing the discount is equal to a principal plus a premium expediently permitted to be amortized by the straight-line method.

Remember, constant dollar amounts are not produced when the effective interest method is used. By that method, the dollar amount of interest varies over the term to maturity. Because the percentage rate of interest remains constant but is applied to a changing debt balance.

Also, be sure to realize that the straight-line method is not an official accounting method. It is a conceptual device, not an application of the straight-line method, which is an appropriate application of GAAP. For example, the effective interest method can be applied for situations of practical expediently in situations when doing so has no material effect.

on the results. Based on the frequency with which the straight-line method is used in practice, all of its drawbacks are very frequently overlooked. Careless use may result in poor investment decisions.

CONCEPT REVIEW EXERCISE

On January 1, 2006, the Meade Group issued \$8,000,000 of 10% bonds, dated January 1. Interest is payable semiannually on June 30 and December 31. The bonds mature in four years. The market yield for bonds of similar risk and maturity is 10%.

ISSUING BONDS AND RECORDING INTEREST

Required:

- Determine the price these bonds sold for to yield the 10% market rate and record their issuance by the Meade Group.
- Prepare an amortization schedule that determines interest at the effective rate and record interest on the first interest date, June 30, 2006.

Determine the price these bonds sold for to yield the 10% market rate and record their issuance by the Meade Group.

SOLUTION

Calculation of the Price of the Bonds

There are eight semiannual periods and one-half the market rate is 5%.

| | | |
|------------------------------------|--------------------------------|-------------|
| Interest | $\$440,000 \times 6.46319^*$ | \$2,843,812 |
| Principal | $\$8,000,000 \times 0.67684^*$ | 5,414,720 |
| Present value (price) of the bonds | | \$8,258,532 |

*Present value of an annuity of \$1, periods, n = 8, interest rate, i = 5%
Present value of \$1, periods, n = 8, interest rate, i = 5%

| | | |
|---------------------------------------|-------------|-------------|
| At price calculated above | \$8,258,532 | |
| Trade payable (face amount) | | \$8,000,000 |
| Premium on bonds payable (difference) | | 258,532 |

Journal Entry at Issuance

Prepare an amortization schedule that determines interest at the effective rate and record interest on the first interest date, June 30, 2006.

Amortization Schedule

| Date | Cash Interest
(5.5% x
Face amount) | Effective Interest
(5% x
Outstanding balance) | Decrease in Balance
(Premium
reduction) | Outstanding Balance |
|----------|--|---|---|---------------------|
| 1/01/06 | | | | \$8,258,532 |
| 6/30/06 | 440,000 | .05 (\$8,258,532) = 412,927 | 27,073 | 8,231,459 |
| 12/31/06 | 440,000 | .05 (\$8,231,459) = 411,573 | 28,427 | 8,203,032 |
| 6/30/07 | 440,000 | .05 (\$8,203,032) = 410,152 | 29,848 | 8,173,184 |
| 12/31/07 | 440,000 | .05 (\$8,173,184) = 408,659 | 31,341 | 8,141,843 |
| 6/30/08 | 440,000 | .05 (\$8,141,843) = 407,092 | 32,908 | 8,108,935 |
| 12/31/08 | 440,000 | .05 (\$8,108,935) = 405,447 | 34,553 | 8,074,382 |
| 6/30/09 | 440,000 | .05 (\$8,074,382) = 403,719 | 36,281 | 8,038,101 |
| 12/31/09 | 440,000 | .05 (\$8,038,101) = 401,905* | 38,101 | \$8,000,000 |
| Totals | 3,520,000 | 3,261,468 | 258,532 | |

*Market interest rate is 10% and the effective rate is 5% (10% ÷ 2). The premium on the bonds is \$258,532. The premium is amortized over the life of the bonds.

| | | |
|---|---------|---------|
| Interest expense (5% × \$8,258,532) | 412,927 | |
| Premium on bonds payable (amortization) | 27,073 | |
| Cash (5.5% × \$8,000,000) | | 440,000 |
| Record interest | | |

Debt Issue Costs

Rather than sell bonds directly to the public, corporations usually sell an entire issue of debt to an underwriter who then resells them to other security dealers and the public. By committing to purchase bonds at a set price, an investment house such as **Salomon Smith Barney**, **JP Morgan**, **Goldman Sachs**, or **Wells Fargo** underwrites the issue and asks a security dealer to sell the bonds. The underwriting fee is the amount by which the price the underwriter pays and the issue price

differs. Alternatively, the issuing company may choose to sell the debt securities directly to a single investor (as we suggested in previous discussions)—often a pension fund or an insurance company. This is referred to as a **private placement**. In a private placement, the securities are less costly because private placements are not subject to the costly and lengthy process of registering with the SEC that is required of public offerings. Underwriting fees also are avoided.

With either publicly or privately sold debt, the issuing company will incur costs in connection with issuing bonds or notes, such as legal and accounting fees and printing costs, in addition to registration and underwriting fees. These debt issue costs are recorded separately and are amortized over the term of the related debt. GAAP requires a debit to **debt issue costs**—debt issue costs. The asset is allocated to expense, usually on a straight-line basis.

For example, let's assume issue costs in Illustration 14-3 had been \$2,000. The entry for the issuance of the bonds would include a separate asset account for the issue costs:

Costs of Issuing Debt

| Account | Debit | Credit |
|--------------------------|--------------|--------------|
| Debt issue costs | 2,000 | |
| Premium on bonds payable | | 2,000 |
| Total | 2,000 | 2,000 |

| Account | Debit | Credit |
|--------------------------|--------------|--------------|
| Debt issue costs | 2,000 | |
| Premium on bonds payable | | 2,000 |
| Total | 2,000 | 2,000 |

| | | |
|--|---------|---------|
| Cash (premium times issue price) | 724,533 | |
| Debt issue costs | | 2,000 |
| Bonds payable (face amount) | | 700,000 |
| Premium on bonds payable (price minus face amount) | | 24,533 |

Remembering a matching item of the asset would be:

| | | |
|--------------------|----|-------|
| Debt issue expense | 61 | 2,000 |
| Debt issue costs | | 2,000 |

ADDITIONAL CONSIDERATION

The treatment of issue costs just described is required by APB Opinion No. 21. A conceptually more appealing treatment would be to reduce the recorded amount of the debt by the debt issue costs instead of recording the costs separately as an asset. The cost of these services reduces the net cash the issuing company receives from the sale of the financial instrument. A lower net cash amount is borrowed at the same cost, increasing the effective interest rate. However, unless the recorded amount of the debt is reduced by the issue costs, the higher rate is not reflected in a higher recorded interest expense. The actual increase in the effective interest rate would be reflected in the interest expense if the issue cost is allocated to reduce the premium (or increase the discount) on the debt.

| | | |
|---------------------------------------|---------|---------|
| Cash (price calculated above) | 724,533 | |
| Bonds payable (face amount) | | 700,000 |
| Premium on bonds payable (difference) | | 24,533 |

Also, this approach is consistent with the treatment of issue costs when equity securities are sold. You will see in Chapter 16 that the effect of share issue costs is to reduce the amount credited to stock accounts.

This treatment also is suggested by the FASB in SFAC 6. Remember though that these concept statements do not constitute GAAP so until a new FASB standard is issued to supersede APB Opinion 21 the generally accepted practice is to record debt issue costs as assets.

¹When the same accounting method is used for both, no income is unaffected by whether the cost is allocated to a separate asset account or to the debt as a higher interest expense.

The corporate bond is the basic long-term debt instrument for most large companies. But for most small and medium-sized firms, the debt instrument of choice is a *note*. We discuss notes next.

LONG-TERM NOTES

When a company borrows a loan from a bank and signs a promissory note, responsibility for the entire amount is reported as a liability. One might be issued in exchange for bank cash, or for property or other assets. Corporate notes are also issued to preserve liquidity when a firm has a need for cash. Properly substantiated notes payable are usually payable in cash at the time of maturity.

PART B

LO3

FINANCIAL REPORTING CASE[®]

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Note Issued for Cash

Interest on a note payable is the equal of the rate because the rate itself is negotiated at the time of the loan. So discounts and premiums are less likely than on bonds. Accounting for a note issued for cash is demonstrated in Illustration 14-4.

On January 1, 2006, Skill Graphics Inc., a product labeling and graphics firm, borrowed \$700,000 from First Banc Corp. and issued a three-year, 4% \$700,000 promissory note. Interest is \$28,000 each payable semiannually on June 30 and December 31.

ILLUSTRATION 14-4

Note Issued for Cash

| At Issuance | | |
|-------------------------------------|---------|---------|
| Skill Graphics (Borrower) | | |
| Debit | | |
| Cash | 700,000 | |
| Notes payable (face amount) | | 700,000 |
| First Banc Corp. (Lender) | | |
| Credit | | |
| Notes receivable | 700,000 | |
| | | 700,000 |
| At Each of the Six Interest Dates | | |
| Skill Graphics (Borrower) | | |
| Debit | | |
| Interest expense | 14,000 | |
| Cash (calculated rate times amount) | | 14,000 |
| First Banc Corp. (Lender) | | |
| Credit | | |
| Interest revenue | 14,000 | |
| Cash | | 14,000 |
| At Maturity | | |
| Skill Graphics (Borrower) | | |
| Debit | | |
| Notes payable | 700,000 | |
| Cash (call to amount) | | 700,000 |
| First Banc Corp. (Lender) | | |
| Credit | | |
| Cash | 700,000 | |
| Notes receivable | | 700,000 |

Note Exchanged for Assets or Services

Occasionally the stated interest rate is not reflective of the *market* rate at the time a note is negotiated. The value of the asset, cash or service, or service exchanged for the note establishes the market rate.* For example, let's assume Skill Graphics purchased a package-labeling

* The market rate is composed of a quoted rate (face rate) and a premium or discount (due to the time value of money). If the interest rate for the note is less than the market rate, the note is issued at a discount. If the interest rate is greater than the market rate, the note is issued at a premium. If the interest rate is equal to the market rate, the note is issued at par.

machine from Hughes-Barker Corporation by issuing a 12%, \$700,000, three-year note that requires interest to be paid semiannually. Let's also assume that the machine could have been purchased at a cash price of \$666,633. We probably recognize this more real situation as the one used earlier to illustrate bonds sold at a discount (Illustration 4). Reference to the other example with a uniform cash exchange for \$700,000 for a machine with a cash price of \$666,633 implies an annual market rate of interest of 14%. That is, 7% is one-half the discount rate that yields a present value of \$666,633 for the note's cash flows (interest and principal):

| | | Present Value |
|---|------------------------------|---------------|
| Interest | $\$42,000 \times 4.76654^*$ | = \$200,195 |
| Principal | $\$700,000 \times 0.66636^†$ | = 466,438 |
| Present value of the note | | \$666,633 |
| *Present value of an ordinary annuity of \$1, $n = 6$, $i = 7\%$. | | |
| †Present value of \$1, $n = 6$, $i = 7\%$. | | |

This is referred to as the *implicit rate of interest*—the rate implicit in the agreement. It may be that the implicit rate is not apparent. Sometimes the value of the asset (or service) is not readily determinable, but the interest rate stated in the transaction is unrealistic relative to the rate that would be expected in a similar transaction under similar circumstances. Deciding what the appropriate rate should be is called *imputing an interest rate*.

For example, suppose the machine exchanged for the 12% note is custom-made for Skill Graphics so that no customary cash price is available with which to work backward to the implicit rate. In that case, the appropriate rate would have to be found externally. It might be determined, for instance, that a more realistic interest rate for a transaction of this type at this time, would be 14%. Then it would be apparent that Skill Graphics actually paid more than \$700,000 for the machine and that part of the face amount of the note in effect makes up for the lower than normal interest rate. You learned early in your study of accounting that the economic essence of a transaction should prevail over its outward appearance. In keeping with this basic precept, the accountant should look beyond the form of the transaction and record its substance. The amount actually paid for the machine is the present value of the cash flows called for by the loan agreement discounted at the market rate (imputed in this case to be 14%). So both the asset acquired and the liability used to purchase it should be recorded at the real cost, \$666,633.

ADDITIONAL CONSIDERATION

For another example, let's assume that a more realistic interest rate for a transaction of this type is, say, 16%. In that case we would calculate the real cost of the machine by finding the present value of both the interest and the principal discounted at half the 16% rate.

| | | Present Value |
|---|------------------------------|---------------|
| Interest | $\$42,000 \times 4.67288^*$ | = \$194,311 |
| Principal | $\$700,000 \times 0.63017^†$ | = 441,499 |
| Present value of the note | | \$635,810 |
| *Present value of an ordinary annuity of \$1, $n = 6$, $i = 8\%$. | | |
| †Present value of \$1, $n = 6$, $i = 8\%$. | | |

Both the asset acquired and the liability used to purchase it would be recorded at \$635,810.

GRAPHIC 14-8**Amortization
Schedule—Note**

Each installment payment covers the interest due on the outstanding debt and the principal amount. The excess of the payment over the interest is applied to the principal.

| Date | Cash Interest
4%
(on amount) | Effective interest
7% x
outstanding balance | Increase in
Balance
Discount
accrual | Outstanding
Balance |
|----------|------------------------------------|---|---|------------------------|
| 1/1/06 | | | | \$66,633 |
| 6/30/06 | 2,665.32 | 4,666.44 | 2,001.12 | 68,634 |
| 12/31/06 | 2,745.36 | 4,806.97 | 2,061.61 | 70,696 |
| 6/30/07 | 2,830.24 | 4,958.48 | 2,128.24 | 72,824 |
| 12/31/07 | 2,919.90 | 5,121.50 | 2,201.60 | 75,026 |
| 6/30/08 | 3,014.60 | 5,296.44 | 2,281.84 | 77,308 |
| 12/31/08 | 3,114.30 | 5,483.46 | 2,369.16 | 79,677 |
| | 25,279.00 | 28,536.7 | 3,257.7 | |

FIGURE 14-8

an amount that represents interest and an amount that represents a reduction of the outstanding balance. The periodic reduction of the balance is sufficient, but at maturity the note is completely paid. This amount is easily calculated by dividing the amount of the loan by the appropriate discount factor for the present value of an annuity. The installment payment amount that would pay the note above is:

$$\begin{array}{rcl} \$66,633 & + & 4.76654 \\ \text{Amount of loan} & & \text{(from Table 4} \\ & & n = 6, i = 7\%) \\ & = & \$ 74,897 \\ & & \text{installment} \\ & & \text{payment} \end{array}$$

Consider Graphic 14-9.

GRAPHIC 14-9**Amortization
Schedule—Installment
Note**

Each installment payment covers the interest due on the outstanding debt and the principal amount. The excess of the payment over the interest is applied to the principal.

| Date | Cash Payment | Effective interest
7% x
outstanding balance | Decrease in
Debt | Outstanding
Balance |
|----------|--------------|---|---------------------|------------------------|
| 1/1/06 | | | | \$66,633 |
| 6/30/06 | 17,713 | 4,666.44 | 13,046.56 | 53,586 |
| 12/31/06 | 17,713 | 4,806.97 | 12,906.03 | 40,679 |
| 6/30/07 | 17,713 | 4,958.48 | 12,754.52 | 27,924 |
| 12/31/07 | 17,713 | 5,121.50 | 12,591.50 | 15,333 |
| 6/30/08 | 17,713 | 5,296.44 | 12,416.56 | 2,916 |
| 12/31/08 | 17,713 | 5,483.46 | 12,229.54 | 0 |
| | 102,858 | 172,507 | 72,649 | |

FIGURE 14-9

The procedure is the same as for a note whose principal is paid at maturity, but the periodic cash payments are larger and there is no lump-sum payment at maturity. We can find the amount of the payments so that after covering the interest on the existing debt each period, the excess would exactly amortize the debt to zero at maturity (rather than to a designated maturity amount).

For installment notes, the outstanding balance of the note does not eventually become face amount as it does for notes with designated maturity amounts. Instead, at the maturity date the balance is zero. Consequently, the significance is lost of maintaining separate balances for the face amount (or a note discount) and the discount (or premium). So an installment note is usually recorded at its full carrying amount in a single note payable or receivable account.

Sid Graphics (Buyer/Issuer)

| | | |
|----------------------|---------|---------|
| Debit | | |
| Premium | 666,633 | |
| Cash | | 666,633 |
| Premium Amortization | | |
| Cash | | |
| Premium Amortization | | |

Debit Credit
 Premium Premium
 Cash Cash

At the First Interest Date (June 30)**Sid Graphics (Borrower)**

| | | |
|----------------------|--------|--------|
| Debit | | |
| Interest Expense | 46,664 | |
| Premium Amortization | 93,328 | |
| Cash | | 79,857 |
| Premium Amortization | | |
| Cash | | |
| Premium Amortization | | |

Debit Credit
 Interest Expense Interest Expense
 Premium Amortization Premium Amortization
 Cash Cash
 Premium Amortization Premium Amortization

ADDITIONAL CONSIDERATION

As we will learn in the next chapter, the liability associated with a capital lease is accounted for the same way as the installment note. In fact, we have learned rather than purchased the cash paying payments rather than installment loan payments and a virtually identical amortization schedule would apply.

The reason for the similarity is that we view a capital lease as being, in substance, equivalent to an installment purchase sale. Naturally, the accounting treatment of the two essentially identical transactions should be consistent. Be sure to notice the parallel treatment as you study leases in the next chapter.

Financial Statement Disclosures

Each balance sheet, long-term debt liability for the debtor (asset for the creditor) typically reports as a single amount the liability (or asset) at the end of the reporting period. However, the fair value of the debt is reported by a separate disclosure and also for the discount or premium. A portion of the debt to be paid (received) during the upcoming year or operating cycle if applicable should be reported as a current amount.

The fair value of financial instruments must be disclosed either in the body of the financial statements or in disclosure notes. These fair values are available for bonds and notes that are actively traded on the market or in the over-the-counter market. For the other financial instruments not traded in market exchange, require other evidence of their value. For example, the market value of a note payable might be approximated by the present value of principal and interest payments using a current discount rate commensurate with the risks involved.

All long-term borrowings, less discounts, should disclose the aggregate amounts required and sinking fund requirements (if any) for each of the next five years.¹⁵ To comply, Parker & Lambie's 2014 annual report stated:

Our stated debt values, however, do not include the interest on the debt, which is reported separately.

Our debt is reported in the following table, which is presented in millions of dollars.

LO4**Supplemental**

Debit Credit
 Cash Cash
 Premium Premium
 Cash Cash
 Premium Premium

The fair value and scheduled amounts the next five years.

(\$ in millions)

The fair value of the long-term debt was \$4,433.5 million June 30, 2004 and \$3,792.9 million June 30, 2003. The scheduled amounts of the long-term debt maturing during the next five years are as follows:

2005—\$1,516; 2006—\$2,025; 2007—\$1,433; 2008—\$372 and 2009—\$1,130

If a company's capital structure is not properly managed, it can encounter serious financial difficulties. For example, a company with a high level of debt may have a high level of interest expense, which could reduce its operating income. If the company's operating income is not sufficient to cover its interest expense, it may have to restructure its debt or even declare bankruptcy. Therefore, a company's capital structure is an important factor in its financial health. The debt to equity ratio is a measure of a company's capital structure. It is calculated by dividing the company's total debt by its total equity. A high debt to equity ratio indicates that a company is heavily leveraged, which means it has a high level of debt relative to its equity. This can be a sign of financial risk, as the company will have to make regular interest payments on its debt, which could reduce its cash flow and profitability. On the other hand, a low debt to equity ratio indicates that a company is less leveraged, which means it has a lower level of debt relative to its equity. This can be a sign of financial strength, as the company will have more cash flow and profitability available to its shareholders.

DECISION MAKERS' PERSPECTIVE

Business decisions involve risk. Failure to properly consider risk in those decisions can be the most costly, yet one of the most common mistakes investors and creditors can make. Long-term debt is one of the first places decision makers should look when trying to handle risk.

In general, debt increases risk. As an owner, debt would place you in a subordinate position relative to creditors because the claims of creditors must be satisfied first in case of liquidation. In addition, debt requires payment, usually on specific dates. Failure to pay the interest and principal on a timely basis may result in default and perhaps even bankruptcy. The debt to equity ratio, total liabilities/shareholders' equity, often is calculated to measure the degree of risk. Other things being equal, the higher the debt to equity ratio, the higher the risk. The type of risk this ratio measures is called *default risk* because it presumably indicates the likelihood a company will default on its obligations.

Debt also affects a company's ability to generate a return to shareholders. The company must make a return on the borrowed funds in excess of the cost of borrowing the funds. Shareholders are provided with a total return greater than what could have been earned with equity alone. This desirable situation is called *favorable financial leverage*. Unfortunately, leverage is not always favorable. Sometimes the cost of borrowing the funds exceeds the return it generates. This illustrates the typical risk-return trade-off faced by shareholders.

Creditors demand interest payments as compensation for the use of their capital. If a company is unable to make these payments, it may face severe consequences, including bankruptcy. Therefore, another way to measure a company's ability to pay its obligations is to compare its interest payments with the income available to pay these charges. The times interest earned ratio does this by dividing income available to pay interest expense by the interest expense.

Two points about this ratio are important. First, because interest is deductible for income tax purposes, income before interest and taxes is a better indication of a company's ability to pay interest than is income after interest and taxes (i.e., net income). Second, income before interest and taxes is a rough approximation for cash flow generated from operations. The primary concern of decision makers is, of course, the cash available to make interest payments. The debt to equity ratio, when computed by dividing cash flow generated from operations by total debt, is a more accurate measure of a company's ability to pay its obligations.

In this chapter, we will compare the debt to equity ratio and the times interest earned ratio for the next page provides condensed financial statements adapted from 2004 annual reports of those companies.

The debt to equity ratio is higher for PepsiCo:

Debt to equity ratio = $\frac{\text{Total liabilities}}{\text{Shareholders' equity}}$

Balance Sheets

\$ in millions

| | Coca-Cola | PepsiCo |
|---|-----------|-----------|
| Assets | | |
| Current assets | \$ 184 | \$ 213.9 |
| Property, plant, and equipment, net | 7 | 2.44 |
| Intangibles and other assets | 14 | 44 |
| Total assets | \$ 205 | \$ 260.34 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | \$ 7 | \$ 8.5 |
| Long-term liabilities | 11 | 224.6 |
| Total liabilities | \$ 18 | \$ 233.1 |
| Shareholders' equity | 135 | 37.24 |
| Total liabilities and shareholders' equity | \$ 205 | \$ 260.34 |
| Income Statements | | |
| Net sales | \$ 14.2 | \$29.26 |
| Cost of goods sold | 11 | 25.04 |
| Gross profit | \$ 3.2 | \$ 4.22 |
| Operating expenses | 2.5 | 6.42 |
| Interest expense | 0.5 | 0 |
| Income before taxes | \$ 0.2 | \$ 2.4 |
| Income taxes | 0.1 | 1.14 |
| Net income | \$ 0.1 | \$ 1.26 |

GRAPHIC 14-10

Condensed Financial Statements of Coca-Cola, PepsiCo

$$\text{Coca-Cola} = \frac{\$ 9,392}{\$ 15,934} = 59\%$$

$$\text{PepsiCo} = \frac{\$ 4,464}{\$ 13,927} = 32\%$$

Remember, that is not necessarily a positive or a negative. Let's look closer. When the return on shareholders' equity is greater than the return on assets, management is using debt funds to enhance the earnings for shareholders. Both firms do this. We calculate return on assets as follows:

$$\text{Rate of return on assets} = \frac{\text{Net income}}{\text{Total assets}}$$

$$\text{Coca-Cola} = \frac{\$ 847}{\$ 205} = 41\%$$

$$\text{PepsiCo} = \frac{\$ 212}{\$ 260.34} = 8\%$$

The return on assets indicates a company's overall profitability, ignoring specific sources of financing. In this regard, Coca-Cola's profitability exceeds that of PepsiCo. That advantage disappears when we compare return to shareholders:

$$\text{Rate of return on shareholders' equity} = \frac{\text{Net income}}{\text{Shareholders' equity}}$$

$$\text{Coca-Cola} = \frac{\$ 847}{\$ 135} = 62.7\%$$

$$\text{PepsiCo} = \frac{\$ 212}{\$ 37.24} = 569\%$$

PERSPECTIVE



Capital markets are operating more and more as a global marketplace. Firms competing for international resources, such as debt funding, include domestic corporations, multinational corporations, as well as foreign corporations and joint ventures. This poses several problems for lenders and other resource providers attempting to evaluate alternatives across international boundaries.

One persistent problem is the lack of uniformity in accounting standards used to produce the financial statements being compared. The gap has narrowed in recent years, but analysts must be aware of differences in accounting methods from country to country. Other complications are being familiar with the accounting consequences of translating results from abroad into dollars, institutional, political, cultural, and tax differences, and identifying appropriate international industry standards for comparison.

PepsiCo's higher leverage has been used to provide a return to shareholders roughly on par with Coca-Cola, even though its return on assets is less. PepsiCo increased its return to shareholders 2.07 times (31.7%/15.7%) the return on assets. Coca-Cola increased its return to shareholders 1.96 times (30.4%/15.5%) the return on assets. Interpret this with caution, though. PepsiCo's higher leverage means higher risk as well. In down times, PepsiCo's return to shareholders will suffer proportionately more than will Coca-Cola's.

From the perspective of a creditor, we might look at which company offers the most comfortable margin of safety in terms of its ability to pay fixed interest charges.

| Times interest
earned ratio | = $\frac{\text{Net income plus interest plus taxes}}{\text{Interest}}$ | | |
|--------------------------------|--|-------|------------|
| Coca-Cola | 34.7 | \$ 36 | 32.7 times |
| PepsiCo | 34.7 | \$ 67 | 34.7 times |

In this regard, both firms provide an adequate margin of safety. The interest coverage ratios seem to indicate an ample safety cushion for creditors, particularly when considered in conjunction with their debt-equity ratios.

Liabilities also can have misleading effects on the income statement. Decision makers should take care to distinguish gains and losses produced by early extinguishment of debt. They have nothing to do with a company's normal operating activities (unheeded, management can be tempted to schedule debt buybacks to provide discretionary income in down years or even losses in up years to smooth income over time).

Astute investors and lenders also look outside the financial statements for risks associated with "off balance-sheet" financing and other commitments that don't show up on the face of financial statements but nevertheless expose a company to risk. Relatedly, most companies attempt to actively manage the risk associated with these and other obligations. It is important for top management to undertake and closely monitor risk management strategies. Some of the financial losses that have grabbed headlines in recent years, were permeated by a lack of oversight and scrutiny by senior management of companies involved. It is similarly important for investors and creditors to become informed about risks companies face and how well-equipped those companies are in managing that risk. The supplemental disclosure designed to communicate the degree of risk associated with the financial instruments we discuss in this chapter contribute to that understanding. We elaborate the significance of these commitments in the next chapter. ■

CONCEPT REVIEW EXERCISE

NOTE WITH AN
UNREALISTIC
INTEREST RATE

Cameron-Brown, Inc. constructed for Harmon Distributors a warehouse that was completed and ready for occupancy on January 2, 2006. Harmon paid for this warehouse by issuing

400,000, four-year note that required 7% interest to be paid on December 31 of each year. The warehouse was custom-built for Harmon, so its cash price was not known. By comparing with similar transactions, it was determined that an appropriate interest rate was 10%.

- Prepare the journal entry for Harmon's purchase of the warehouse on January 2, 2006. Prepare (a) an amortization schedule for the four-year term of the note and (b) the journal entry for Harmon's first interest payment on December 31, 2006.
2. Suppose Harmon's note had been an installment note to be paid in four equal payments. What would be the amount of each installment if payable (a) at the end of each year beginning December 31, 2006? or (b) at the beginning of each year beginning on January 2, 2006?

Prepare the journal entry for Harmon's purchase of the warehouse on January 2, 2006.

SOLUTION

| | | Present Values |
|--|------------------------------|----------------|
| Interest | $\$400,000 \times 3.16987^*$ | = \$1,267,902 |
| Principal | $\$900,000 \times 0.68301^*$ | = \$614,709 |
| Present value of the note | | \$1,882,611 |
| *Present value of an ordinary annuity of \$1: $n = 4$, $i = 10\%$ | | |
| *Present value of \$1: $n = 4$, $i = 10\%$ | | |
| Warehouse (cost determined above) | | \$1,882,611 |
| Less: Notes payable difference | | 85,589 |
| Notes payable (face amount) | | \$900,000 |

Prepare (a) an amortization schedule for the four-year term of the note and (b) the journal entry for Harmon's first interest payment on December 31, 2006.

| | Cash Interest | Effective Interest | Increase in Balance | Outstanding Balance |
|---------|---------------------------|----------------------------------|----------------------|---------------------|
| Dec. 31 | (7% \times Face amount) | 10% \times Outstanding balance | (Discount reduction) | |
| | | | | \$1,882,611 |
| 2006 | \$28,000 | \$188,261 | \$160,261 | \$2,042,872 |
| 2007 | 28,000 | 206,806 | 178,806 | \$2,221,678 |
| 2008 | 28,000 | 226,168 | 198,168 | \$2,419,846 |
| 2009 | 28,000 | 247,985 | 219,985 | \$2,639,831 |
| Total | \$112,000 | \$670,220 | \$558,220 | |

- (b) Journal entry for Harmon's first interest payment on December 31, 2006:
- Interest expense (effective rate \times outstanding balance) $\$188,261$
- Less: Cash (face amount) $\$28,000$
- Notes payable (difference) $\$160,261$

2. Suppose Harmon's note had been an installment note to be paid in four equal payments. What would be the amount of each installment if payable (a) at the end of each year beginning December 31, 2006? or (b) at the beginning of each year beginning on January 2, 2006?

- (a) Amount of loan $\$1,882,611$
- Amount of loan \div (From Table 4 $n = 4$, $i = 10\%$) 3.16987 = \$594,141
- Amount of loan \div (From Table 5 $n = 4$, $i = 10\%$) 3.48685 = \$539,944

Each period the amount of the debt outstanding decreases.

By the end of period 4, the amount of the debt outstanding during the year.

Because payments are made at the end of each period, the value of the debt outstanding during the year.

PART C DEBT RETIRED EARLY, CONVERTIBLE INTO STOCK, OR PROVIDING AN OPTION TO BUY STOCK

Early Extinguishment of Debt

- **LOS** As the previous illustration demonstrates, debt paid in installments is systematically retired over the term to maturity so that at the designated maturity date the outstanding balance is zero. When a maturity amount is specified as in our earlier illustrations, any discount or premium has been systematically reduced to zero as of the maturity date and the debt is retired simply by paying the maturity amount. However, a gain or a loss may result when debt is retired before its scheduled maturity.

Earlier we noted that a call feature accompanies most bonds to protect the issuer against declining interest rates. Even when bonds are not callable, the issuing company can retire bonds early by purchasing them on the open market. Regardless of the method, when debt of any type is retired prior to its scheduled maturity date, the transaction is referred to as an extinguishment of debt.

To record the extinguishment, the account balances pertinent to the debt previously have been removed from the books. Of course, cash is credited for the amount paid—the call price or market price. The difference between the carrying amount of the debt and the reacquisition price represents either a gain or a loss on the early extinguishment of debt. Let's continue on our earlier example to illustrate the retirement of debt prior to its scheduled maturity (Illustration 14-5).

As the previous illustration demonstrates, debt paid in installments is systematically retired over the term to maturity so that at the designated maturity date the outstanding balance is zero. When a maturity amount is specified as in our earlier illustrations, any discount or premium has been systematically reduced to zero as of the maturity date and the debt is retired simply by paying the maturity amount. However, a gain or a loss may result when debt is retired before its scheduled maturity.

ILLUSTRATION 14-5
Early Extinguishment of Debt

On January 1, 2007, Mastercard Inc. retired its \$700,000, 12% bonds when the carrying amount was \$670,288. The indenture required a call price of \$685,000. The bonds were issued previously at a price of yield of 5%.

| | |
|---|---------|
| Bonds payable (face amount) | 700,000 |
| Less: early extinguishment discount of \$24,712 | 8,712 |
| Discount on bonds payable (\$700,000 - \$675,288) | 24,712 |
| Call price | 685,000 |

Convertible Bonds

Some companies include a convertible feature as part of a bond offering. Convertible bonds can be converted into (that is, exchanged for) shares of stock at the option of the bondholder. Among the reasons for issuing convertible bonds rather than straight debt are (a) to sell the bonds at a higher price (which means a lower effective interest cost),¹⁵ (b) to use as a medium of exchange in mergers and acquisitions, and (c) to enable smaller firms or debt-heavy companies to obtain access to the bond market. Sometimes convertible bonds serve as an indirect way to issue stock when there is shareholder resistance to direct issues of additional equity.

Central to each of these reasons for issuing convertible debt is that the conversion feature is attractive to investors. This hybrid security has features of both debt and equity. The bond has a fixed-income security that can become common stock if and when the firm's management makes that feasible. This increases the investor's upside potential while limiting the downside risk. The conversion feature has monetary value. Just how valuable it is depends on both its conversion terms and market conditions. But from an accounting perspective the question raised is how to account for its value. To evaluate the question, consider Illustration 14-6.

FINANCIAL REPORTING CASE

Q5, p. 681

Case 14-1: The company's financial reporting case discusses the company's decision to issue convertible bonds.

Convertible bonds have features of both debt and equity.

¹⁵ Because the price of a convertible security is higher than the price of a straight debt security, the company can issue the convertible security at a higher price than the straight debt security. This means that the company can raise more money by issuing convertible bonds than by issuing straight debt. The company can also use the convertible bonds as a medium of exchange in mergers and acquisitions. This means that the company can use the convertible bonds to acquire other companies without having to issue cash or other assets. The company can also use the convertible bonds to enable smaller firms or debt-heavy companies to obtain access to the bond market. This means that the company can use the convertible bonds to raise money without having to issue cash or other assets.

method records the new shares at the market value of the shares themselves or of the bonds, whichever is more determinate.¹⁸ Because the market value most likely will differ from the book value of the bonds, a small profit or loss on conversion will result. Assuming no difference, that the market value of T's stock is \$30 per share at the time of the conversion:

| | | \$ in millions |
|---------------------------|-----------------------|----------------|
| Convertible bonds payable | the 40 million bonds | 50 |
| Paid-in capital | the 40 million shares | 0 |
| Gain on conversion | the 40 million shares | 0 |
| Paid-in capital | the 40 million shares | 50 |

If a single investor had purchased the 50,000 bonds being converted, that company would record the conversion as follows:

| | \$ in millions |
|---|----------------|
| Investment in common stock | 50 |
| Investment in convertible bonds (debit balance) | 0 |
| Premium on bond investment (debit balance) | 0 |

INDUCED CONVERSION

Investors often are reluctant to convert bonds to stock, even when share prices have risen significantly since the convertible bonds were purchased. This is because the market value of the convertible bonds will rise along with market prices of the stock. So companies sometimes try to induce conversion. The motivation might be to reduce debt and become a net debtor to potential lenders or achieve a lower debt-to-equity ratio.

One way is through the call provision. As we noted earlier, most corporate bonds are callable by the issuing corporation. When the specified call price is less than the conversion value of the bonds (the market value of the shares), calling the convertible bonds can encourage bondholders with incentives to convert. Bondholders will choose the shares rather than the lower call price.

Occasionally corporations may try to encourage voluntary conversion by offering an added inducement in the form of cash, stock warrants, or a more attractive conversion rate. When additional consideration is provided to induce conversion, the fair value of that consideration is considered an expense incurred to bring about the conversion.¹⁹

Bonds with Detachable Warrants

Another (less common) way to sweeten a bond issue is to include detachable stock purchase warrants as part of the security issue. A stock warrant gives the investor an option to purchase a stated number of shares of common stock at a specified *option price*, often within a given period of time. Like a conversion feature, warrants usually mean a lower interest rate and often enable a company to issue debt when borrowing would not be feasible otherwise.

However, unlike a conversion feature, warrants can be separated from the bonds, so that they can be exercised independently or traded in the market separately from the bonds, having their own market price. In essence, two different securities—the bonds and the warrants—are sold as a package for a single issue price. Accounting for the issue price allocates between the two different securities on the basis of their market values. If the separate market value of only one of the two securities is readily determinable, that value controls the allocation. This is demonstrated in Illustration 4-7.

Any conditions

When a company issues convertible bonds, it must disclose the terms of the conversion, including the conversion price and the conversion period.

The value of the bonds with detachable warrants is determined by adding the value of the bonds and the value of the warrants, which are determined based on their market values.

¹⁸ Induced Conversion of Convertible Debt. *Statement of Financial Accounting Standards No. 46* (Sanford, Conn.: FASB, 1991).

In January 2006, HTL Manufacturers issued \$100 million 9% debentures due 2013 at par and 100,000 detachable warrants at \$5 per share. Each warrant permits the holder to buy one share of \$5 par common stock at \$15 per share. The warrants were listed on the exchange at \$3.00.

ILLUSTRATION 14-7
Bonds with
Detachable Warrants

| | \$ in millions |
|--|----------------|
| Issue price $100,000 \times \$15$ market | 1,500 |
| Less: Amount of bonds payable (face value) | 100 |
| Amount available to allocate to warrants | 1,400 |
| Number of warrants | 100,000 |
| Amount allocated to each warrant | 14.00 |

Journal entry to record the issuance of the bonds and warrants.

ADDITIONAL CONSIDERATION

Market imperfections may cause the separate market values not to sum to the issue price of the package. In this event, allocation is achieved on the basis of the relative market values of the two securities. Let's say the bonds have a separate market price of \$940 per bond, priced at 94.

| | Market Values | |
|--|---------------|------|
| Bonds: 100,000 bonds \times \$940 | \$94,000,000 | |
| Warrants: 100,000 warrants \times \$13.00 market | \$1,300,000 | |
| Total | \$95,300,000 | 100% |

Proportion of Issue Price Allocated to Bonds:

$$\frac{\$94 \text{ million}}{\$95.3 \text{ million}} \times 100 = 98.63\%$$

Proportion of Issue Price Allocated to Warrants:

$$\frac{\$1.3 \text{ million}}{\$95.3 \text{ million}} \times 100 = 1.37\%$$

| | \$ in millions |
|--|----------------|
| Issue price $100,000 \times \$15$ market | 1,500.00 |
| Less: Amount of bonds payable $100,000 \times \$94$ market | 9,400.00 |
| Bonds payable (face amount) | 100.00 |
| Paid-in capital—stock warrants outstanding | 1.37 |

Notice that this is the same approach we used in Chapter 10 to allocate a single purchase price to two or more assets bought for that single price. We also will allocate the total selling price of two equity securities sold for a single issue in proportion to their relative market values in Chapter 18.

If the holder of the warrants exercises the warrants, the exercise would result in the market value of HTL's common stock at \$15 per share. The number of shares would be issued for one warrant each plus the exercise price of \$25 per share.

| | \$ in millions |
|--|----------------|
| Issue price $100,000 \times \$15$ market | 1,500 |
| Less: Paid-in capital—stock warrants outstanding | 1.37 |
| Amount available to allocate to shares | 1,498.63 |
| Number of shares $1,498.63 / \$15$ per share | 99,908.67 |

The \$15 market value at the date of exercise is not used in valuing the additional shares sold. The new shares are recorded at the total of the previously measured values of both the warrants and the shares.

ILLUSTRATION 14-8
Exercise of
Warrants

CONCEPT REVIEW EXERCISE

ISSUANCE AND EARLY EXTINGUISHMENT OF DEBT

The disclosure notes in the 2006 financial statements of Olswanger Industries included the following:

Note 12. Bonds

On October 3, 2005, the Corporation sold bonds with an aggregate principal amount of \$500,000,000 bearing a 14% interest rate. The bonds will mature on September 5, 2015 and are unsecured obligations of the Corporation. Interest is payable semiannually on March 5 and September 5. The Corporation may redeem the bonds at any time beginning September 15, 2005, at a whole or from time to time in part through maturity at specified redemption prices ranging from 129% of principal in declining percentages of principal amount through 2007 when the percentage is equal to 100% of principal amount. The costs of issuing the bonds, totaling \$1,000,000 and the discount of \$25,000,000 are being amortized over the life of the bonds using the straight-line method and the interest method, respectively. Amortization of issue costs for the year ended December 31, 2006, was \$960,000 and \$252,000, respectively.

During the year ended December 31, 2006, the Corporation repurchased, in open market transactions, \$219,433,000 in face amount of the bonds for \$224,000,000, including accrued interest. The interest cost of repurchasing these bonds and the unamortized discount of \$1,000,000 and \$1,952,000, respectively, has been deducted in the current period.

From the information provided by Olswanger in Note 12, you should be able to prepare some of the journal entries the company recorded in connection with this bond issue.

Required:

1. Prepare the journal entry for the issuance of these bonds on October 3, 2005. (Be sure to include accrued interest for the half-month period between September 15 and October 3.)
2. Prepare the journal entry for the repurchase of these bonds, assuming the date of repurchase was November 15, 2006. The accrued interest for the two-month period between September 15 and November 5 would be $\$200,000,000 \times 14\% \times \frac{1}{2} = \$14,000,000$ (rounded). Assume the entry to accrue interest was recorded separately, so the cash paid to repurchase the bonds was \$219,433,000 [$\$224,000,000$ (amount paid) $- \$14,000,000$].

Solution

1. Prepare the journal entry for the issuance of these bonds on October 3, 2005:

| | \$ in 000s |
|--|------------|
| Cash (to balance) | 456,976 |
| Bond issue costs (given in note) | 1,000 |
| Discount on bonds payable (given in note) | 25,000 |
| Bonds payable (face amount given in note) | 500,000 |
| Interest payable (accrued interest "due date") | 1,976 |

or Cash \$457,976 Discount \$25,000 Bonds Payable \$500,000

2. Prepare the journal entry for the repurchase of these bonds, assuming the date of repurchase was November 15, 2006:

| | \$ in 000s |
|---|------------|
| Bonds payable (face amount repurchased) | 219,433 |
| Loss on early extinguishment (to balance) | 25,567 |
| Discount on bonds payable (given in note) | 1,887 |
| Bond issue costs (given in note) | 1,976 |
| Cash (given in requirement 2) | 217,163 |

FINANCIAL REPORTING CASE SOLUTION



What does it mean that the bonds are first mortgage bonds? What effect does that have on financing? (p. 663) A mortgage bond is backed by a lien on specified real estate owned by the issuer. This makes it less risky than unsecured debt. Service Leader can expect to be able to sell the bonds at a higher price (lower interest rate).

From Service Leader's perspective, why are the bonds callable? What does that mean? (p. 663) The call feature gives Service Leader some protection against being stuck with relatively high-cost debt in case interest rates fall during the 15 years to maturity. Service Leader can buy back, or call, the bonds from bondholders before the 15-year maturity date after June 30, 2008. The call price is prespecified at 103 percent of the face value—\$1,030 per \$1,000 bond.

How will it be possible to sell bonds paying investors 6.25% when other similar investments will provide the investors a return of 8.5%? (p. 663) Service Leader will be able to sell its 6.25% bonds in a 8.5% market only by selling them at a discounted price, below face amount. Bonds are priced by the marketplace to yield the market rate of interest for securities of similar risk and maturity. The price will be the present value of all the periodic cash interest payments (face amount \times stated rate) plus the present value of the principal payable at maturity, both discounted at the market rate.

1. Would accounting differ if the debt were designated as notes rather than bonds? (p. 675, No. Other things being equal, whether they're called bonds, notes, or some other form of debt, the same accounting principles apply. They will be recorded at present value and interest will be recorded at the market rate over the term to maturity.
2. Why might the company choose to make the bonds convertible into common stock? (p. 684) Convertible bonds can be converted at the option of the bondholders into shares of stock. Sometimes the motivation for issuing convertible bonds rather than straight debt is to use the bonds as a medium of exchange in mergers and acquisitions, as a way for smaller firms or debt-heavy companies to obtain access to the bond market, or as an indirect way to issue stock when there is shareholder resistance to direct issuance of additional equity. None of these seems pertinent to Service Leader. The most likely reason is to sell at a higher price. The conversion feature is attractive to investors. Investors have a fixed-income security that can become common stock if circumstances make that attractive. The investor has additional possibilities for higher returns, with downside risk limited by the underlying debt. ■

THE BOTTOM LINE

1. A liability requires the future payment of cash in specified amounts at specified dates. As time passes, interest accrues on debt at the effective interest rate times the amount of the debt outstanding during the period. This same principle applies regardless of the specific form of the liability.
2. Forces of supply and demand cause a bond to be priced to yield the market rate, calculated as the present value of all the cash flows required, where the discount rate is the market rate. Interest accrues at the effective market rate of interest multiplied by the outstanding balance (during the interest period). A company is permitted to allocate a discount or a premium equally to each period over the term to maturity if doing so produces results that are not materially different from the interest method.
3. In concept, notes are accounted for in precisely the same way as bonds. When a note is issued with an unsecured interest rate, the effective market rate is used both to determine the amount recorded in the transaction and to record periodic interest thereafter.

4. On the balance sheet, disclosure should include, for all long-term borrowings, the aggregate amounts maturing and sinking fund requirements (if any) for each of the next five years. Supplemental disclosures are needed for (a) off-balance sheet credit or loan risk, (b) concentrations of credit risk, and (c) the fair value of financial instruments.
5. A gain or loss on early extinguishment of debt should be recorded for the difference between the reacquisition price and the carrying amount of the debt. Convertible bonds are accounted for as straight debt, but the value of the equity feature is recorded separately for bonds issued with detachable warrants. ■

TROUBLED DEBT RESTRUCTURING

A respected real estate developer, Brilliant Properties, was very successful developing and managing prime properties in the sun-belted United States. To finance these efforts, the developer had borrowed hundreds of millions of dollars from several regional banks. For years, events occurred as planned. The investments prospered. Cash flow and high interest payments on the debt were timely and individual loans were repaid as scheduled.

Alas, suddenly, however, the real estate climate in the region soured. Investments no longer provided handsome profits now did not provide the cash flow necessary to service the debt. Bankers who had loaned substantial funds to Brilliant now faced a dilemma. They could insist that contractual interest payments be paid, the bankers had the legal right to demand payment, which would force the developer to liquidate all or a major part of the properties to raise the cash. Sound business practice? Not necessarily.

If creditors force liquidation, they then must share among themselves the cash raised from selling the properties at forced sale prices. Believing the developer's financial condition was caused by temporary market forces and by bad management, the bankers might choose to minimize their losses by *restructuring* the debt agreements, rather than by forcing liquidation.

When changing the original terms of a debt agreement is motivated by financial difficulties experienced by the debtor (borrower), the new arrangement is referred to as a *troubled debt restructuring*. By definition, a troubled debt restructuring involves some action on the part of the creditor (lender). A troubled debt restructuring may be achieved in one of two ways:

1. The debt may be *settled* at the time of the restructuring.
2. The debt may be *continued*, but with *modified terms*.

Debt Is Settled

In the situation described above, one choice the bankers had was to try to actually settle the debt outright at the time of the troubled debt restructuring. For instance, a bank holding a \$30 million note from the developer might agree to accept a property valued at net's say, \$21 million as final settlement of the debt. In that case, the developer has a \$9 million gain equal to the difference between the carrying amount of the debt and the fair value of the property received. The debtor now must adjust the carrying amount of an asset to its fair value prior to recording its exchange of debt. The developer in our example, for instance, would need to change the recorded amount for the property specified in the exchange agreement. If it is carried at an amount other than its \$21 million fair market value. In such an instance, an ordinary gain or loss on disposition of assets should be recorded as shown in Illustration 14A-1.

The payment to settle a debt in a troubled debt restructuring might be cash, or a market asset (as in the example here), or even shares of the debtor's stock. An example of stock being given in exchange for debt (negotiated as the celebrated reorganization of TWA in 1977 was done in the American Airlines, which reduced its debt to a \$3 billion corporate commitment and a certain amount of equity, some about \$5 billion on the airline's \$2 billion debt. In an extreme case, the debtor's carrying amount difference between the carrying amount of the debt and the fair value of the asset(s) or equity securities transferred.

In all cases of
a troubled debt restructuring,
the debtor must adjust the carrying
amount of the asset to its fair value.

First Prudent Bank agrees to settle Bril and's \$30 million debt on the market value of \$20 million. The carrying amount of the debt is \$33 million.

and \$20 million minus \$3 million

gain on disposition of assets

debt payable amount minus

gain on disposition of debt restructuring

carrying amount

exchange for property having market value of \$20 million on Bril and's books, is

(\$ in millions)

30

30

10

20

ILLUSTRATION 14A-1 Debt Settled

An asset is transferred to the creditor to settle a liability. The debt is settled.

Debt Is Continued but with Modified Terms

We assumed in the previous example that First Prudent Bank agreed to accept property in full settlement of the debt. A more likely occurrence would be that the bank allows the debt to continue, but modifies the terms of the debt agreement to make it easier for the debtor to repay. In bank debt restructuring, the debtor usually receives a new agreement to pay the debt in installments over a longer period. Often a troubled debt restructuring will call for a combination of these concessions.

Let's say the stated interest rate on the note in question is 10%, and annual interest payments of \$3 million (10% \times \$30 million) are payable in December of each of two remaining years to maturity. Also assume that the developer was unable to pay the \$3 million interest payment for the year just ended. This means that the amount owed—the carrying amount (or book value) of the debt—is \$33 million (\$30 million plus one year's accrued interest).

According to generally accepted accounting principles, the way the debtor accounts for its restructuring depends on the extent of the reduction in cash payments called for by the new debt arrangement. More specifically, the accounting procedure depends on whether, under the new agreement, total cash payments (a) are less than the carrying amount of the debt or (b) still exceed the carrying amount of the debt.

WHEN TOTAL CASH PAYMENTS ARE LESS THAN THE CARRYING AMOUNT OF THE DEBT

Under the original agreement, the debtor was to pay at maturity the \$30 million owed, plus high periodic interest to provide a 10% effective rate of return. If the new agreement calls for less cash than the \$33 million now owed, interest is presumed to have been eliminated.

As one of many possibilities, suppose the bank agrees to (1) forgive the interest accrued in last year, (2) reduce the two remaining interest payments from \$3 million each to \$2 million each, and (3) reduce the face amount from \$30 million to \$25 million. Clearly, the firm will pay less by the new agreement than by the original one. In fact, if we add up the cash payments called for by the new agreement, the total (\$2 million \times 2) plus \$25 million is less than the \$33 million carrying amount. Because the \$29 million does not exceed the amount owed, the restructured debt agreement no longer provides interest on the debt. Actually, the new payments are \$4 million short of covering the debt itself. So, after the debt restructuring, no interest expense is recorded. All subsequent cash payments are considered in payment of the debt itself. Consider Illustration 14A-2.

Suppose that Bril and's owes First Prudent Bank \$30 million under a 10% note with two years remaining to maturity. Due to a decline in sales of the developer, the previous year's interest payment was not paid. First Prudent Bank agrees to forgive the interest accrued from last year.

Reduce the remaining two interest payments to \$2 million each.

Reduce the principal to \$25 million.

| | | | |
|------------------|-----------------|------------------------|----------------------------|
| Analysis: | Carrying amount | \$30 million | \$3 million = \$33 million |
| | Future payments | \$2 million \times 2 | \$25 million = 29 million |
| | Gain | | \$4 million |

(continued)

The carrying amount of the debt is \$33 million. The new agreement calls for cash payments of \$29 million. The difference of \$4 million is the gain on debt restructuring.

Two quite different situations are illustrated. In the first, the cash payments are less than the carrying amount of the debt. In the second, the cash payments are more than the carrying amount of the debt. The accounting treatment depends on which situation exists.

ILLUSTRATION 14A-2 Cash Payments Less than the Debt

ILLUSTRATION 14A-2

Concluded

Carrying Amount

| Before Restructuring | After Restructuring |
|----------------------|---------------------|
| Carrying Amount | Carrying Amount |
| \$30 | \$29 |
| 3 | 1 |
| \$27 | \$28 |

After restructuring, the interest expense is calculated as follows:

Carrying amount at the end of the year: \$28 million

Interest rate: 10%

Interest expense: \$2.8 million

At the end of the year, the carrying amount of the debt is \$29 million.

Accrued interest payable (10% × \$30 million)
Note payable (\$30 million - \$29 million)
Gain on debt restructuring

\$ in millions
2

When the total future cash payments are less than the carrying amount of the debt, the difference is recorded as a gain at the date of restructuring. No interest should be recorded thereafter. That is, all subsequent cash payments result in reductions of principal.

At Each of the Two Interest Dates

Note payable

Cash received, interest amount

\$ in millions
2

At Maturity

Note payable

Cash received, principal amount

25
2

WHEN TOTAL CASH PAYMENTS EXCEED THE CARRYING AMOUNT OF THE DEBT

Let's modify the example in the previous section. Now suppose the bank agrees to delay its due date for all cash payments until maturity and accept \$34,333,200 at that time in full settlement of the debt. Rather than just reducing the cash payments as in the previous illustration, the payments are delayed. It is not the nature of the change that creates the need to account differently for this situation, but the amount of the total cash payments under the agreement relative to the carrying amount of the debt. This situation is demonstrated in Illustration 14A-3.

ILLUSTRATION 14A-3

Cash Payments More than the Debt

The carrying amount of the debt is \$30 million. The carrying value on the date of restructuring is \$33 million and its fair value is \$34,333,200. The effective rate of interest is 10%.

Brillford Properties owes First Prudent Bank \$30 million under a 10% note with two years remaining to maturity. Due to Brillford's financial difficulties, the previous year's interest (\$3 million) was not paid. First Prudent Bank agrees to:

1. Delay the due date for all cash payments until maturity.
2. Accept \$34,333,200 at that time in full settlement of the debt.

| | | |
|-----------|-----------------|---|
| Analysis: | Future payments | \$34,333,200 |
| | Carrying amount | \$30 million + \$3 million = \$33,000,000 |
| | Interest | \$1,333,200 |

Calculation of the New Effective Interest Rate

- $\$33,000,000 + \$1,333,200 = 9612$, the Table 2 value for $n = 2$, $i = ?$
- In row 2 of Table 2, the number 9612 is in the 2% column. So, this is the new effective interest rate.

As long as cash payments exceed the amount owed, the amount owed them will be interest-free. The effective rate is 0%.

Unpaid interest is accrued at the effective rate times the carrying amount of the debt.

Now the total payments called for by the new agreement, \$34,333,200, exceed the \$33 million carrying amount. Because the payments exceed the amount owed, the restructuring debt agreement still provides interest on the debt—but less than before the agreement was revised. No longer is the effective rate 10%. The accounting objective now is to determine what the new effective rate is and record interest for the remaining term of the loan at the new, lower rate, as shown in Illustration 14A-3.

Because the total future cash payments are not less than the carrying amount of the debt, no reduction of the existing debt is necessary and no entry is required at the time of the debt restructuring. Even though no cash is paid until maturity under the restructured debt agreement, interest expense still is recorded annually—but at the new rate.

At the End of the First Year

| | | |
|--|----------|----------|
| Interest expense $2\% \times (\$30,000,000 + 3,000,000)$ | \$60,000 | |
| Accrued interest payable | | \$60,000 |

At the End of the Second Year

| | | |
|--|----------|----------|
| Interest expense $2\% \times (\$30,000,000 + 2,600,000)$ | \$58,000 | |
| Accrued interest payable | | \$58,000 |

At Maturity (End of the Second Year)

| | | |
|--|--------------|------------|
| Face payable | \$30,000,000 | |
| Accrued interest payable (\$58,000 + \$58,000 + 2,600) | 4,332,000 | |
| Cash required by new agreement | | 14,332,000 |

The carrying amount of the debt is increased by the amount of interest from the previous year.

Tip: It is critical to remember that the amount of cash to be paid at maturity.

ADDITIONAL CONSIDERATION

To keep up with the changing amounts, it may be convenient to prepare an amortization schedule for the debt.

| Year | Cash Interest | Effective Interest
(2%
Outstanding balance) | Increase
in Balance | Outstanding
Balance |
|------|---------------|---|------------------------|------------------------|
| | | | | \$3,000,000 |
| 0 | \$2,330,000 | \$60,000 | \$60,000 | \$3,060,000 |
| 1 | \$2,366,000 | \$58,000 | \$58,000 | \$3,118,000 |
| 2 | | \$58,000 | \$58,000 | \$3,176,000 |

An amortization schedule is particularly helpful if there are several years remaining to maturity.

In our example, the restructuring debt agreement called for simple cash payments at maturity of \$3,000,000. If more than one cash payment is required, as in the agreement in our car example, calculating the new effective rate is more difficult. The concept would remain straightforward: (1) determine the interest rate that provides a present value of all future cash payments that is equal to the current carrying amount and (2) record the interest at that rate.

Mechanically, though, the computation by hand would be cumbersome, requiring a time-consuming trial-and-error calculation. Since our primary interest is understanding the concepts involved, we will avoid the mathematical complexities of such a situation.

You also should be aware that when a restructuring involves modification of terms, accounting for a liability by the debtor as described in this section, and accounting for a receivable by the creditor, which was described in Chapter 2, are inconsistent. You may recall that when a creditor's investment in a receivable becomes impaired, due to a troubled debt restructuring or for any other reason, the receivable is remeasured based on the discounted present value of currently expected cash flows at the asset's original effective rate (regardless of the extent to which expected cash receipts have been reduced). For ease of comparison, the example in this chapter (Illustration 4A-3) describes the same situation as the example in Chapter 12 (Illustration 12B-2). There is no conceptual justification for the asymmetry between debtors' and creditors' accounting for troubled debt restructurings. The FASB will likely reconsider debtors' accounting in the future.¹⁹

¹⁹See FASB's discussion of a "Current of Financial Statement" in the FASB's "Financial Accounting Standards Board" (FASB) website.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 14-1 How is periodic interest determined for "outstanding liabilities"? For "outstanding receivables"? How does the approach compare from one form of debt instrument (say, bonds payable) to another (say, notes payable)?
- Q 14-2 As a general rule, how should long-term liabilities be reported on the debtor's balance sheet?

- Q 14-3** How are bonds and notes the same? How do they differ?
- Q 14-4** What information is contained on a bond indenture? What purpose does it serve?
- Q 14-5** Why will bonds always sell at their face plus any interest that has accrued since the last interest due?
- Q 14-6** On January 1, 2006, Brandon Electronics issued \$80 million of 14.5% bonds, dated January 1. The market yield for bonds of maturity issued by similar firms in terms of riskiness is 12.25%. How can Brandon tell debt paying only 14.5% in a 12.25% market?
- Q 14-7** How is the price determined for a bond (or bond issue)?
- Q 14-8** A zero-coupon bond pays no interest. Explain.
- Q 14-9** When bonds are issued at a premium the debt declines each period. Explain.
- Q 14-10** Compare the two commonly used methods of determining interest on bonds.
- Q 14-11** APB Opinion No. 21 requires that debt discounts be paid out separately and amortized over the term of the related debt. Describe a logical alternative to this accounting treatment.
- Q 14-12** When a note's stated rate of interest is unrealistic relative to the market rate, the concept of substance over form should be applied. Explain.
- Q 14-13** Mandatorily redeemable shares obligate the issuing company to buy back the shares in exchange for cash or other assets. Where in the balance sheet are these securities reported?
- Q 14-14** How does an installment sale differ from a sale for which the principal is paid as a single amount in a lump sum?
- Q 14-15** Long-term debt can be reported either (a) as a single amount net of any discount or increased by any premium or (b) at its face amount accompanied by a separate valuation account for the discount or premium. Any portion of the debt to be paid during the reporting year, or reporting cycle if longer, should be reported as a current amount. Regarding amounts to be paid in the future, what additional disclosures should be made in connection with long-term debt?
- Q 14-16** Early extinguishment of debt often produces a gain or a loss. How is the gain or loss determined?
- Q 14-17** What criteria are used to classify a gain or a loss on early extinguishment of debt as an extraordinary item in the income statement?
- Q 14-18** Both convertible bonds and bonds issued with detachable warrants have features of both debt and equity. How does the accounting treatment differ for the two hybrid securities? Why is the accounting treatment different?
- Q 14-19** At times, companies try to induce voluntary conversion by offering an added incentive—maybe cash, or a warrant, or a more favorable conversion price. How is such an inducement accounted for? How is it measured?
- Q 14-20** Based on Appendix 14: When the original terms of a debt agreement are changed because of financial difficulties experienced by the debtor, how should the new arrangement be reflected in its financial statements? Should a restructuring be taken as a series of events, or an accounting purpose view? Have provisions been adopted to categorize? What are the accounting benefits of a troubled debt restructuring?
- Q 14-21** (Based on Appendix 14) Fran Industries owes First National Bank \$5 million but, due to financial difficulties, is unable to comply with the original terms of the loan. The bank agrees to settle the debt by accepting land having a fair market value of \$3 million. The carrying amount of the property on Fran's books is \$4 million. For the reporting period in which the debt is settled, what amount(s) will Fran report on its income statement in connection with the troubled debt restructuring?
- Q 14-22** (Based on Appendix 14) The way a debtor accounts for the restructuring depends on the nature of the restructuring in cash payments called for by the restructured arrangement. Describe, in general, the accounting procedure for the two basic cases: when, under the new agreement, total cash payments (a) are less than the carrying amount of the debt or (b) are equal to the carrying amount of the debt.

BRIEF EXERCISES

BE 14-1
Accrued interest

LO

BE 14-2
Determining the price of bonds

LO2

On April 1, 2006, Holiday Brands issued \$30 million of 6%, 30-year bonds, dated January 1, 2006, for \$30 million (plus accrued interest). What was the amount of accrued interest that was included in the proceeds received from the bond issue?

A company issues 5%, 30-year bonds with a face amount of \$8 million. The market yield for bonds like this and maturity is 6%. Interest is paid semiannually. At what price did the bonds sell?

- 14-4 Determining the price of bonds
- 14-5 Determining the price of bonds
- 14-6 Determining the price of bonds
- 14-7 Determining the price of bonds
- 14-8 Determining the price of bonds
- 14-9 Determining the price of bonds
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- 14-11 Determining the price of bonds
- 14-12 Determining the price of bonds
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- 14-99 Determining the price of bonds
- 14-100 Determining the price of bonds

EXERCISES

An alternative exercise and problems set is available on the text website: www.mhhe.com/spiceland10

On March 31, 2004, Brown-Ferris Corporation issued \$100 million of 12% bonds dated January 1, 2006, for \$99 million (plus accrued interest). The bonds mature on December 31, 2025, and pay interest semiannually on June 30 and December 31. Brown-Ferris's fiscal period is the calendar year.

14-101

14-102

Required

- Determine the amount of accrued interest that was included in the proceeds received from the bond sale.
- Prepare the journal entry for the issuance of the bonds by Brown-Fertig.

E 14-3

Bond valuation

LO2

Your investment department has researched possible investments in corporate debt securities. Among the available alternatives are the following \$100 million bond issues, each dated January 1, 2006. Prices are determined by underwriters at different times during the last few weeks.

| | Company | Bond Price | Stated Rate |
|----|----------|---------------|-------------|
| 1. | BB Corp. | \$109 million | 11% |
| 2. | DD Corp. | \$100 million | 10% |
| 3. | GG Corp. | \$ 91 million | 9% |

Each of the bond issues matures on December 31, 2025, and pays interest semiannually on June 1 and December 31. For bonds of similar risk and maturity, the market yield at January 1, 2006, is 10%.

Required

After charges being equal, which of the bond issues offers the most attractive investment opportunity at the prices stated? (The best alternative? Why?)

E 14-3

Determine the price of bonds in various situations.

LO2

Determine the price of a \$5 million bond issue under each of the following independent assumptions.

| | Maturity | Interest Paid | Stated Rate | Effective (Market) Rate |
|----|----------|---------------|-------------|-------------------------|
| 1. | 10 years | annually | 10% | 12% |
| 2. | 10 years | semiannually | 10% | 12% |
| 3. | 10 years | semiannually | 12% | 10% |
| 4. | 20 years | semiannually | 12% | 10% |
| 5. | 20 years | semiannually | 12% | 12% |

E 14-4

Determine the price of bonds issued at effective interest on amortization schedule.

LO2

The Bradford Company issued 10% bonds dated January 1, with a face amount of \$50 million on January 1, 2006. The bonds mature in 20 5 (10 years). For bonds of similar risk and maturity, the market rate is 12%. Interest is paid semiannually on June 30 and December 31.

Required

- Determine the price of the bonds at January 1, 2006.
- Prepare the journal entry to record their issuance by The Bradford Company on January 1, 2006.
- Prepare the journal entry to record interest on June 30, 2006, at the effective rate. (Do not prepare an amortization schedule.)
- Prepare the journal entry to record interest on December 31, 2006, at the effective rate. (Do not prepare an amortization schedule.)

E 14-5

Determine effective interest on amortization schedule.

LO2

The Bradford Company sold the entire bond issue described in the previous exercise to Savings & Loans.

Required

- Prepare the journal entry to record the purchase of the bonds by Savings & Loans on January 1, 2006. Prepare the journal entry to record interest on June 30, 2006, at the effective rate. (Do not prepare an amortization schedule.)
- Prepare the journal entry to record interest on December 31, 2006, at the effective rate. (Do not prepare an amortization schedule.)

E 14-6

Determine the price of bonds issued at effective interest on amortization schedule.

LO2

Myriad Solutions, Inc., issued 10% bonds dated January 1, with a face amount of \$320 million on January 1, 2006. The bonds mature in 20 16 (10 years). For bonds of similar risk and maturity, the market rate is 12%. Interest is paid semiannually on June 30 and December 31.

Required

- Determine the price of the bonds at January 1, 2006.
- What would be the net amount of the liability Myriad would report in its balance sheet at December 31, 2006?
- What would be the amount related to the bonds that Myriad would report in its income statement for the year ended December 31, 2006?
- What would be the amount related to the bonds that Myriad would report in its statement of cash flows for the year ended December 31, 2006?

E 14-7

Determine the price of bonds issued at effective interest on amortization schedule.

LO2

The Glavin Company issues \$900,000 of 10% bonds on June 30, 2006. The bonds were dated on June 30, 2006, and mature on June 30, 2026 (20 years). The market yield for bonds of similar risk and maturity is 12%. Interest is paid semiannually on December 31 and June 30.

Required:

- Determine the price of the bonds at June 30, 2006.
- Prepare the journal entry to record their issuance by The Wooten Group on June 30, 2006.
- Prepare the journal entry to record interest on December 31, 2006 (at the effective rate). (Do not prepare an amortization schedule.)
- Prepare the journal entry to record interest on June 30, 2007 (at the effective rate). (Do not prepare an amortization schedule.)

Universal Foods issued 9% bonds, dated January 1, with a face amount of \$150 million on January 1, 2006. The bonds mature on December 31, 2025 (25 years). The market rate of interest for similar issues was 2%. Interest is paid semiannually on June 30 and December 31. Universal uses the straight-line method.

Required:

- Determine the price of the bonds at January 1, 2006.
- Prepare the journal entry to record their issuance by Universal Foods on January 1, 2006.
- Prepare the journal entry to record interest on June 30, 2006.
- Prepare the journal entry to record interest on December 31, 2006.

Universal Foods sold the entire bond issue described in the previous exercise to Wang Communications.

Required:

- Prepare the journal entry to record the purchase of the bonds by Wang Communications on January 1, 2006.
- Prepare the journal entry to record interest revenue on June 30, 2006.
- Prepare the journal entry to record interest revenue on December 31, 2006.

Federal Sentinels issued 11% bonds, dated January 1, with a face amount of \$800 million on January 1, 2006. The bonds sold for \$739,314.34 and mature on 2025 (20 years). The bonds of similar risk and maturity the market yield was 2%. Interest is paid semiannually on June 30 and December 31.

Required:

- Prepare the journal entry to record their issuance by Federal on January 1, 2006.
- Prepare the journal entry to record interest on June 30, 2006 (at the effective rate). (Do not prepare an amortization schedule.)
- Prepare the journal entry to record interest on December 31, 2006 (at the effective rate). (Do not prepare an amortization schedule.)

National Outfitters Co. issued 9% bonds, dated January 1, with a face amount of \$500,000 on January 1, 2006. The bonds mature in 2009 (4 years). For bonds of similar risk and maturity the market yield was 7%. Interest is paid semiannually on June 30 and December 31.

Required:

- Determine the price of the bonds at January 1, 2006.
- Prepare the journal entry to record their issuance by National on January 1, 2006.
- Prepare an amortization schedule that determines interest at the effective rate each period.
- Prepare the journal entry to record interest on June 30, 2006.
- Prepare the appropriate journal entries at maturity on December 31, 2009.

On February 1, 2006, **Straw-Lombardi** issued 9% bonds, dated February 1, with a face amount of \$800,000. The bonds sold for \$737,364 and mature on January 31, 2026 (20 years). The market yield for bonds of similar risk and maturity was 7%. Interest is paid semiannually on July 31 and January 31. Straw-Lombardi's fiscal year ends December 31.

Required:

- Prepare the journal entry to record their issuance by Straw-Lombardi on February 1, 2006.
- Prepare the journal entry to record interest on July 31, 2006 (at the effective rate). (Do not prepare an amortization schedule.)
- Prepare the adjusting entry to accrue interest on December 31, 2006.
- Prepare the journal entry to record interest on January 31, 2007.

On March 1, 2006, **Stratford Lighting** issued 4% bonds dated March 1 with a face amount of \$300,000. The bonds sold for \$244,000 and mature on February 28, 2026 (20 years). Interest is paid semiannually on August 31 and February 28. Stratford uses the straight-line method and its fiscal year ends December 31.

Required:

- Prepare the journal entry to record the issuance of the bonds by Stratford Lighting on March 1, 2006.
- Prepare the journal entry to record interest on August 31, 2006.
- Prepare the journal entry to record interest on December 31, 2006.
- Prepare the journal entry to record interest on February 28, 2007.

E 3-4
Multiple-choice, CPA
exam, credits

• Q2

The following questions dealing with bonds are adapted from past CPA examinations. Determine the response that best completes the statement or answers the question.

- On January 1, 2007, Oak Co. issued 400 of its 8%, \$1,000 bonds at 97 plus accrued interest. The bonds were dated October 1, 2006, and mature on October 1, 2012. Interest is payable semiannually on July 1 and October 1. Accrued interest for the period October 1, 2006, to January 1, 2007, amounted to \$8,000. On January 1, 2007, what amount should Oak report as bonds payable, net of discount?
 - \$392,000
 - \$396,000
 - \$400,000
 - \$408,000
- On December 31, 2006, Moss Co. issued 1,000,000 of 5% bonds at 109. Each \$1,000 bond was issued with 50 detachable stock warrants, each of which entitled the bondholder to purchase one share of \$5 par common stock for \$25. Immediately after issuance, the market value of each warrant was \$1. On December 31, 2006, what amount should Moss record as discount or premium for issuance of bonds?
 - \$50,000 premium
 - \$90,000 premium
 - \$1,000,000 premium
 - \$200,000 discount
- A bond issued on June 1, 2006, has interest payment dates of April 1 and October 1. Bond interest expense for the year ended December 31, 2006, is for a period of:
 - Three months
 - Four months
 - Six months
 - Seven months

E 5-15
Notes with unrealistic
interest rate

• Q3

Amber Mining and Milling, Inc., contracted with Trunk Corporation to have constructed a conveyor belt. The machine was completed and ready for use on January 1, 2006. Amber paid for the belt by issuing a \$600,000, three-year note that specified 4% interest, payable annually on December 31 of each year. The cash market price of the note was unknown. It was determined by comparison with similar transactions that 5.2% was a reasonable rate of interest.

Required:

- Prepare the journal entry on January 1, 2006, for Amber Mining and Milling's purchase of the belt.
- Prepare an amortization schedule for the three-year term of the note.
- Prepare the journal entries to record (a) interest for each of the three years and (b) payment of the note at maturity.

F 4-8
Installment note

• Q3

American Food Services, Inc., acquired a packaging machine from Barton and Barton Corporation. Barton and Barton completed construction of the machine on January 1, 2006. In payment for the \$4 million machine, American Food Services issued a four-year installment note to be paid in four equal payments at the end of each year. The payments include interest at the rate of 4%.

Required:

- Prepare the journal entry for American Food Services' purchase of the machine on January 1, 2006.
- Prepare an amortization schedule for the four-year term of the installment note.
- Prepare the journal entry for the first installment payment on December 31, 2006.
- Prepare the journal entry for the third installment payment on December 31, 2006.

E 14-17
Early extinguishment

• Q3

The balance sheet of Indian River Electronics Corporation as of December 31, 2005, included bonds having a face amount of \$90 million. The bonds had been issued in 1998 and had a nominal cost of \$3 million at December 31, 2005. On January 1, 2006, Indian River Electronics called the bonds before their scheduled maturity at the call price of 102.

Required:

Prepare the journal entry by Indian River Electronics to record the redemption of the bonds at maturity.

E 14-18
Convertible bonds

• Q3

On January 1, 2006, Clark Textiles issued \$12 million of 9%, 10-year convertible bonds at 98. The bonds pay interest on June 30 and December 31. Each \$1,000 bond is convertible into 40 shares of Clark's \$25 par common stock. Century Services purchased 10% of the issue as an investment.

Required:

- Prepare the journal entries for the issuance of the bonds by Clark and the purchase of the bonds by Century.
- Prepare the journal entries for the June 30, 2010, interest payment by both Clark and Century, assuming both use the straight-line method.

3. On July 1, 2011, when Gloss's common stock had a market price of \$31 per share, Century converted the bonds held. Prepare the journal entries by both Gloss and Century for the conversion of the bonds (book value method).

On August 30, 2016, Limbaugh Corporation issued \$30 million of 10% nonconvertible bonds at 104. The bonds are due on July 31, 2026. Each \$1,000 bond was issued with 30 detachable stock warrants, each of which entitled the bondholder to purchase, for \$50, one share of Limbaugh Corporation's \$10 par common stock. Investors purchased 20% of the bond issue. On August 1, 2016, the market value of the common stock was \$34 per share and the market value of each warrant was \$4.

In February, 2017, when Limbaugh's common stock had a market price of \$72 per share and the unamortized discount balance was \$1 million, Limbaugh Corporation exercised the warrants it held.

Required

1. Prepare the journal entries on August 30, 2016, to record (a) the issuance of the bonds by Limbaugh and (b) the investment by Investors.
2. Prepare the journal entries for both Limbaugh and Investors in February, 2017, to record the exercise of the warrants.

When companies offer new debt security issues, they publicize the offerings in the financial press and on its Web site. Assume the following were among the debt offerings reported in December 2014.

New Securities Issues

Corporate

National Equipment Transfer Corporation issued \$100 million bonds via its managing agent, Tennessee Bank N.A. and Morgan Stanley, in a syndicate offering. Terms: maturity Dec. 15, 2019; coupon 7%; issue price par; yield, 7.16%; notes were debt rated Baa1 by Moody's and Aa2 by S&P.

igWig Inc. issued \$250 million of notes via its managing agent, Citigroup, in a syndicate offering. Terms: maturity 6/15/21; all-date 4.00% (fixed) plus 30-day LIBOR; notes were debt rated Baa1 by Moody's and Aa2 by S&P.

Required

1. Prepare the appropriate journal entries to record the sale of both issues by underwriters. Ignore share splits and stock repurchases.
2. Prepare the appropriate journal entries to record the first semiannual interest payment for both issues.

Wilkins Food Products, Inc. acquired a packaging machine from Lawrence Specialties Corporation. Lawrence completed construction of the machine on January 1, 2014. Its payment for the machine Wilkins received a three-year installment note to be paid in three equal payments at the end of each year. The payments include interest at the rate of 10%.

Lawrence made a conceptual error in preparing the amortization schedule which Wilkins failed to discover until 2016. The error had caused Wilkins to understate interest expense by \$47,000 in 2014 and \$40,000 in 2015.

Required

1. The error which was made was the result of which error in January 1, 2014, before any adjustments had been made? What entries would be taken to correct the error?

At the end of 2005, Majors Furniture Company failed to accrue \$61,000 of interest expense that accrued during the last five months of 2005 on bonds payable. The bonds mature in 2014. The discount on the bonds is amortized by the straight-line method. The following entry was recorded on February 1, 2006, when the semiannual interest was paid.

| | | | |
|---------------------------|--|--------|--------|
| Interest expense | | 73,200 | |
| Discount on bonds payable | | | 1,200 |
| Cash | | | 72,000 |

Required

Prepare any journal entry necessary to correct the error as well as any adjusting entry for 2006 related to the situation described. Ignore income taxes.

E 14-23
Multiple choice CMA
exam: long-term debt

LO2

The following questions dealing with long-term debt are designed to test questions that previously appeared in Certified Management Accountant (CMA) examinations. The CMA designation is awarded by the American Management Association (AMA) to those who pass a rigorous examination of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

Questions 1 and 2 are based on the following information: On January 1, Matthew Company issued 7-term bonds with a face amount of \$1,000,000 due in 5 years. Interest is payable semiannually on January 1 and July 1. On the date of issue, investors were willing to accept an effective interest rate of 8%.

- The bonds were issued at a premium.
 - a premium
 - no additional value
 - at a discount
 - at a discount
- Assume the bonds were issued at a premium for \$1,050,000. Using the effective interest method, Matthew Company recorded interest expense for the 6 months ending June 30 on the issued bonds.
 - \$35,000
 - \$41,000
 - \$45,000
 - \$51,000
- A bond issue sold at a premium is valued on the statement of financial position at the
 - maturity value
 - maturity value plus the unamortized portion of the premium
 - cost at the date of investment
 - maturity value less the unamortized portion of the premium

P 14-49
Required debt
restructuring; debt
secured. Based on
Appendix 14

On January 1, 2006, Transit Developments Inc. (Transit) had a bank loan of \$600,000 under an 8% note with three years remaining to maturity. Due to financial difficulties, Transit was unable to pay the previously scheduled payments.

Transit's bank group agreed to restructure the debt in exchange for cash having a fair market value of \$400,000. Transit purchased the cash on 12/31/06 for \$425,000.

Required:

Prepare the journal entry(ies) to record the restructuring of the debt by Transit Developments.

E 14-25
Required debt
restructuring;
modification of terms.
Based on
Appendix 14

On January 1, 2006, Brunswick Industries Inc. (Brunswick) had a bank loan of \$10 million under a 10% note with 5 years remaining to maturity. Due to financial difficulties, Brunswick was unable to pay the scheduled payments. After negotiating the terms of the debt agreement, Brunswick agreed to:

- Reduce the interest rate on the loan to 5%.
- Reduce the remaining two years' interest payments to \$1 million each and defer the first payment until December 31, 2007.
- Reduce the unpaid principal amount to \$4 million.

Required:

Prepare the journal entries by Brunswick Industries Inc., necessitated by the restructuring of the debt on January 1, 2006; 2) December 31, 2007; and 3) December 31, 2008.

P 14-50
Required debt
restructuring;
modification of terms.
Based on
Appendix 14

On January 1, 2006, ABC Industries Inc. was able to raise \$100,000 from a bank under a 10% interest rate. The loan was signed January 1, 2006, and the December 31, 2007, annual interest was paid. Due to financial difficulties and negotiations, a restructuring of the terms of the debt agreement was agreed upon. The bank agreed to reduce the two-year interest rate to 5% and the remaining two years' interest payments to \$5,000 each and defer all payments until December 31, 2007. The maturity date

Required:

Prepare the journal entries by ABC Industries Inc., necessitated by the restructuring of the debt at (1) January 1, 2006; (2) December 31, 2007; and (3) December 31, 2008.

PROBLEMS

P 14-5
Determining the price
of bonds; discount and
premium; issuer and
investor

An alternate exercise and problem set is available on the text website: www.mhhe.com/squibbbs.

On January 1, 2006, Insulform Inc. issued 10% bonds with a face amount of \$50 million, dated Jan. 1, 2006, and maturing in 2025 (20 years). The market yield for bonds of similar risk and maturity is 12%. The first interest payment is due on January 1, 2007.

Required

1. Determine the price of the bonds at January 1, 2006, and prepare the journal entry to record their issuance by Haskins.
2. Assume the market rate was 9%. Determine the price of the bonds at January 1, 2006, and prepare the journal entry to record their issuance by Haskins.

Assume Broadview Electronics purchased the entire issue in a private placement of the bonds. Using the data in requirement 2, prepare the journal entry to record their purchase by Broadview.

On March 1, 2006, Badger Inc. issued 9% bonds dated January 1, with a face amount of \$50 million. The bonds were priced at \$540 million (plus accrued interest) to yield 12%. Interest is paid semiannually on June 30 and December 31. Haskins's fiscal year ends September 30.

Required

1. What amount(s) related to the bonds would Badger report in its balance sheet at September 30, 2006?
2. What amount(s) related to the bonds would Badger report in its income statement for the year ended September 30, 2006?
3. What amount(s), related to the bonds would Badger report in its statement of cash flows for the year ended September 30, 2006?

On January 1, 2008, Bradley Recreation Products issued \$100,000, 9% four-year bonds. Interest is paid semiannually on June 30 and December 31. The bonds were issued at \$98,765 to yield an annual return of 9%.

Required

1. Prepare an amortization schedule that determines interest at the effective interest rate.
2. Prepare an amortization schedule by the straight-line method.
3. Prepare the journal entries to record interest expense on June 30, 2008, by each of the two approaches.
4. Explain why the pattern of interest differs between the two methods.
5. Assuming the market rate is still 10%, what price would a second investor pay for the first investor on June 30, 2008, for \$7,000 of the bonds?

On January 1, 2006, Tennessee Harvester Corporation issued debenture bonds that pay interest semiannually on June 30 and December 31. Portions of the bond amortization schedule appear below.

| Payment | Cash Interest | Effective Interest | Increase in Balance | Outstanding Balance |
|---------|---------------|--------------------|---------------------|---------------------|
| 1 | 320,000 | 331,364 | 11,364 | 6,521,233 |
| 2 | 320,000 | 331,937 | 11,937 | 6,641,170 |
| 3 | 320,000 | 332,528 | 12,528 | 6,763,697 |
| 4 | 320,000 | 333,135 | 13,135 | 6,896,832 |
| 5 | 320,000 | 333,757 | 13,757 | 7,030,589 |
| 6 | 320,000 | 334,394 | 14,394 | 7,174,983 |
| ... | ... | ... | ... | ... |
| 38 | 320,000 | 389,109 | 59,109 | 7,851,247 |
| 39 | 320,000 | 392,562 | 72,562 | 7,923,809 |
| 40 | 320,000 | 396,191 | 76,191 | 8,000,000 |

Required

1. What is the face amount of the bond?
2. What is the initial selling price of the bonds?
3. What is the term to maturity in years?
4. Interest is determined by what approach?
5. What is the stated annual interest rate?
6. What is the effective annual interest rate?
7. What is the total cash interest paid over the term to maturity?
8. What is the total effective interest expense recorded over the term to maturity?

On February 1, 2006, Crumley Motor Products issued 9% bonds, dated February 1, with a face amount of \$80 million. The bonds mature on January 31, 2010 (4 years). The market yield for bonds of similar risk and maturity was 10%. Interest is paid semiannually on July 31 and January 31. Barnwell Industries acquired \$360,000 of the bonds as a long-term investment. The fiscal years of both firms end December 31.

Required

1. Determine the price of the bonds issued on February 1, 2006.
2. Prepare amortization schedules that disclose (a) Crumley's effective interest expense and (b) Barnwell's effective interest revenue for each interest period during the term to maturity.

4.4
effective interest
effective interest
partial statement
the is

4.7
effective interest and
effective interest
required

Excel

2.4
effective interest
effective interest
required

4.4
effective interest
effective interest
partial statement
the is

Excel

P 14-6
Issuer and investor
straight-line method
adjusting entries

• LO2

P 14-7
Issuer and investor
effective interest; no
amortization schedule

• LO2

Excel

P 14-8
Zero coupon bonds

• LO2

P 14-9
Notes exchanged for
assets

• LO3

P 14-10
Notes with unrealistic
interest rates

• LO3

P 14-11
Noninterest-bearing
installment note

• LO

- Prepare the journal entries to record (a) the issuance of the bonds by Laramie and (b) Laramie's investment on February 1, 2006.
- Prepare the journal entries by both firms to record all subsequent events related to the bonds through January 1, 2006.

On April 1, 2006, Western Communications Inc. issued 12% bonds dated March 1, 2006, with face amount of \$30 million. The bonds sold for \$29.3 million and mature on February 28, 2009. Interest is paid semiannually on August 31 and February 28. Gilman Corporation acquired \$30,000 of the bonds as a long-term investment. The fiscal years of both firms end December 31, and both firms use the straight-line method.

- Required:**
- Prepare the journal entries to record (a) issuance of the bonds by Western and (b) Gilman's investment on April 1, 2006.
 - Prepare the journal entries by both firms to record all subsequent events related to the bonds through maturity.

McWhorter Instruments sold \$400 million of the bonds dated January 1, 2006, on January 1, 2006. The note matures on December 31, 2025, 20 years. For bonds of similar risk and maturity, the market yield was 10% when the bonds were issued. On June 30, 2006, Blanton Technologies Inc. purchased \$40 million of the bonds as a long-term investment.

- Required:**
- Determine the price of the bonds issued on January 1, 2006.
 - Prepare the journal entries to record (a) their issuance by McWhorter and (b) Blanton's investment on January 1, 2006.
 - Prepare the journal entries by (a) McWhorter and (b) Blanton to record interest on June 30, 2006, at the effective rate. (Do not prepare an amortization schedule.)
 - Prepare the journal entries by (a) McWhorter and (b) Blanton to record interest on December 31, 2006, at the effective rate. (Do not prepare an amortization schedule.)

On January 1, 2006, Laramie Window and Frame sold \$10 million of 10-year, zero-coupon bonds for \$9,100,000.

- Required:**
- Prepare the journal entry to record the bond issue.
 - Determine the effective rate of interest.
 - Prepare the journal entry to record annual interest expense at December 31, 2006.
 - Prepare the journal entry to record annual interest expense at December 31, 2007.
 - Prepare the journal entry to record the extinguishment at maturity.

At the beginning of the year, Lambert Motors issued the three notes described below.

- The company issued a two-year, 12% \$600,000 note in exchange for a loan of land. The stated rate of interest is 10%.
- Lambert acquired some office equipment with a fair market value of \$94,645 by issuing a six-year, \$100,000 note. The stated interest on the note is 8%.
- The company purchased a building by issuing a three-year installment note. The note is to be paid in equal installments of \$1 million per year beginning one year hence. The stated market rate of interest is 10%.

Required:
Prepare the journal entries to record each of the three transactions and the interest expense at the end of the first year for each.

At January 1, 2006, Brant Cargo acquired equipment by issuing a five-year, \$150,000 (payable) note with 14% rate. The market rate of interest for notes of similar risk is 10%.

- Required:**
- Prepare the journal entry for Brant Cargo to record the purchase of the equipment.
 - Prepare the journal entry for Brant Cargo to record the interest at December 31, 2006.
 - Prepare the journal entry for Brant Cargo to record the interest at December 31, 2007.

At the beginning of 2006, VHF Industries acquired a machine with a fair market value of \$4,074,904 by issuing a four-year, noninterest-bearing note in the face amount of \$8 million. The note is payable in four equal installments of \$2 million at the end of each year.

- Required:**
- What is the effective rate of interest implicit in the agreement?
 - Prepare the journal entry to record the purchase of the machine.
 - Prepare the journal entry to record the first installment payment at December 31, 2006.
 - Prepare the journal entry to record the second installment payment at December 31, 2007.

3. Suppose the market value of the machine was unknown at the time of purchase, but the market rate of interest for notes of similar risk was 16%. Prepare the journal entry to record the purchase of the machine.

Branton Technologies, Inc., constructed a conveyor for ABC Warehouses that was completed and ready for use on January 1, 2006. ABC paid for the conveyor by issuing a \$400,000, four-year note that specified 5% interest to be paid on December 31 of each year. The conveyor was custom-built for ABC, so its cash price was unknown. By comparing with similar transactions it was determined that a reasonable interest rate was 14%.

Required

1. Prepare the journal entry for ABC's purchase of the conveyor on January 1, 2006.
2. Prepare an amortization schedule for the four-year term of the note.
3. Prepare the journal entry for ABC's third interest payment on December 31, 2008.
4. If ABC's note had been an installment note to be paid in four equal payments at the end of each year beginning December 31, 2006, what would be the amount of each installment?
5. Prepare an amortization schedule for the four-year term of the installment note.
6. Prepare the journal entry for ABC's third installment payment on December 31, 2008.

Three years ago American Insulation Corporation raised 10 percent, \$500,000, 10-year bonds for \$700,000. Debt issue costs were \$25,000. American Insulation exercised its call privilege and retired the bonds for \$790,000. The corporation uses the straight-line method both to determine interest and to amortize debt issue costs.

Required

1. Prepare the journal entry to retire the bonds.

The long-term liability section of Twin Digital Corporation's balance sheet as of December 31, 2005, included 12% bonds having a face amount of \$20 million and a remaining discount of \$1 million. Disclosure notes indicate the bonds were issued to yield 14%.

Interest is recorded at the effective (market) rate and paid on January 1 and July 1 of each year. On July 1, 2006, Twin Digital retired the bonds at 102 (\$20.4 million) before their scheduled maturity.

Required

1. Prepare the journal entry by Twin Digital to record the semiannual interest on July 1, 2006.
2. Prepare the journal entry by Twin Digital to record the redemption of the bonds on July 1, 2006.

The following transactions relate to bond investments of Lovernore Corporation. The company's fiscal year ends on December 31. Lovernore uses the straight-line method to determine interest.

2004

- | | |
|--------|--|
| July 1 | Purchased \$16 million of Bluecourt Corporation 10% debentures, due in 20 years (maturity 2024), for \$15.7 million. Interest is payable on January 1 and July 1 of each year. |
| Oct 1 | Purchased \$30 million of 12% Frimco Pharmaceuticals debentures, due May 31, 2016, for \$3,180,000 plus accrued interest. Interest is payable on June 1 and December 1 of each year. |
| Dec 31 | Received interest on the Frimco bonds.
Accrued interest. |

2005

- | | |
|--------|---|
| Jan 1 | Received interest on the Bluecourt bonds. |
| June 1 | Received interest on the Frimco bonds. |
| July 1 | Received interest on the Bluecourt bonds. |
| Sept 1 | Sold \$15 million of the Frimco bonds at 101 plus accrued interest. |
| Dec 31 | Received interest on the remaining Frimco bonds.
Accrued interest. |

2006

- | | |
|--------|--|
| Jan 1 | Received interest on the Bluecourt bonds. |
| Feb 28 | Sold the remainder of the Frimco bonds at 102 plus accrued interest. |
| Dec 31 | Accrued interest. |

Required

Prepare the appropriate journal entries for these long-term bond investments.

Capita Park Corporation issued 10%, \$400,000, 10-year bonds for \$385,000 on June 30, 2006. Debt issue costs were \$15,000. Interest is paid semiannually on December 31 and June 30. One year from the issue date (on 6/30/16), the corporation exercised its call privilege and retired the bonds for \$400,000. The corporation uses the straight-line method both to determine interest and to amortize debt issue costs.

Required

1. Prepare the journal entry to record the issuance of the bonds.
2. Prepare the journal entries to record the payment of interest and amortization of debt issue costs on December 31, 2006.

P 14-17
Concepts; terminology

LO 1 through LO5

3. Prepare the journal entries to record the payment of interest and amortization of debt discount on June 30, 2017.

4. Prepare the journal entries to record the call of the bonds.

Used bonds are several in number and chosen to be paired with some zero debt. Put each item together with the item from List B that is most appropriately associated with it.

| List A | List B |
|--|--|
| 1. Effective rate times balance | a. Straight-line method |
| 2. Premiums made to bondholders | b. Discount |
| 3. Present value of interest plus present value of principal | c. Liquidation payments after other claims satisfied |
| 4. Call feature | d. Name of owner not registered |
| 5. Debt issue costs | e. Premium |
| 6. Market rate higher than stated rate | f. Checks are mailed directly |
| 7. 50-per bonds | g. No specific assets pledged |
| 8. Convertible bonds | h. Bond indenture backed by a lien |
| 9. Market rate less than stated rate | i. Interest expense |
| 10. Stated rate times face amount | k. May become stock |
| Registered bonds | l. Legal accounting, naming |
| 11. Detachable bond | m. Protection against dilution |
| 12. Mortgage bond | n. Periodic cash payments |
| 13. Materiality concept | o. Bond price |
| 14. Subordinated debenture | |

P 14-18
Early extinguishment

LO 1, LO5

The Long Term Debt account of Eastern Products Company having a face amount of \$10 million, had a balance sheet date of December 31, 2016. The balance sheet showed the following items:

Required:
Prepare the journal entries by Eastern Products Company for the redemption of the bonds under each of the independent circumstances below.
Eastern Products called half the bonds at the call price of 102 (102% of face amount).
a. Called to first extinguishment \$5 million of the bonds for the open market at their market price of 110 million.

P 14-19
Convertible bonds
induced conversion,
bonds with detachable
warrants

LO 2, LO5

Bradley-Link's December 31, 2016, balance sheet included the following items:

| Long-Term Liabilities | \$ in millions |
|---|----------------|
| 9.6% convertible bonds, callable at 101 beginning in 2017
due 2020, net of unamortized discount of \$21 (note 2) | \$198 |
| 10.4% registered bonds callable at 104 beginning in 2016,
due 2020, net of unamortized discount of \$7 (note 2) | 49 |
| Shareholders' Equity | |
| Paid-in capital—stock warrants outstanding | 4 |

Note 2: Bonds (in part)

The 9.6% bonds were issued in 2015 to yield 10%. Interest is paid semiannually on June 30 and December 31. Each \$1,000 bond is convertible into 40 shares of the company's \$5-per-common-stock.

The 10.4% bonds were issued in 2016 to yield 10%. Interest is paid semiannually on June 30 and December 31. Each \$1,000 bond is convertible into 40 detachable stock warrants, each of which entitles the holder to purchase one share of the company's \$5-per-common-stock for \$25 beginning in 2017.

On January 1, 2017, when Bradley-Link's common stock had a market price of \$32 per share, Bradley-Link called the convertible bonds to force conversion. 90% were converted; the remainder were called at the call price. When the common stock price reached an all-time high of \$37 in December of 2017, all the warrants were exercised.

Required:

- Show the journal entries that were recorded with each of the two bond issues with a liability of \$198 and \$49.
- Prepare the journal entry to record the cash value of the conversion of 90% of the convertible bonds in January 2017 and the retirement of the remainder.

Assume Bradley-Lark adjusted conversion by multiplying the conversion ratio to exchange 45 shares for each bond rather than the 40 shares included in the contract. Prepare the journal entry to record this value method, the conversion of 40% of the convertible bonds in January 2007.

4. Assume Bradley-Lark adjusted conversion by multiplying the conversion ratio to exchange 45 shares for each bond rather than the 40 shares included in the contract. Prepare the journal entry to record this value method, the conversion of 40% of the convertible bonds in January 2007.
5. Prepare the journal entry to record the exercise of the warrants in December 2007.

At January 1, 2006, Rothchild & Sons Company, Inc., was indebted to First Lincoln Bank under a \$21 million, 8% unsecured note. The note was signed January 1, 2003, and was due December 31, 2008. Annual interest was last paid on December 31, 2004. Rothchild & Sons Company was experiencing severe financial difficulties and negotiated a restructuring of the terms of the debt agreement.

Required

Prepare all journal entries by Rothchild & Sons Company, Inc., to record the restructuring and any special accounting relating to the debt under each of the independent circumstances below:

1. First Lincoln Bank agreed to settle the debt in exchange for cash having a fair market value of \$16 million less interest on Rothchild & Sons Company's books at \$1 million.
2. First Lincoln Bank agreed to (a) forgive the interest accrued from 2004 year (b) reduce the remaining loan interest payments to \$1 million each, and (c) reduce the principal to \$1.5 million.
3. First Lincoln Bank agreed to defer all payments, including accrued interest, until the maturity date and accept \$27,775,000 at that time in settlement of the debt.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Case 14-1
4
Convertible Securities
Accounting Concepts
10-14

It is not unusual to issue long-term debt in conjunction with an agreement under which lenders receive an option to buy common stock during all or a portion of the time the debt is outstanding. Sometimes the vehicle is convertible bonds, sometimes warrants to buy stock accompanying the bonds and, on separate instances, Chemical is considering these options in conjunction with a planned debt issue.

"You bonds we have to report \$7 million more in liabilities if we go with convertible bonds? Makes no sense to me," your CFO said. "Both ways seem pretty much the same transaction. Explain it to me, will you?"

Required

Write a memo. Include in your explanation each of the following:

1. The differences in accounting for proceeds from the issuance of convertible bonds and of debt instruments with separate warrants to purchase common stock.
2. The underlying rationale for the differences.
3. Arguments that could be presented for the alternative accounting treatment.

The 2004 annual report of Hewlett-Packard Company reports non-current notes issued as the end of its 1997 fiscal year. One billion, eight hundred million dollars face amount of 20-year debt sold for \$946 million, a price to yield 5.49%. In fiscal 2000, HP repurchased \$337 million in face value of the notes for a purchase price of \$127 million, resulting in a gain on the early extinguishment of debt.

Required

1. What journal entry did Hewlett-Packard use to record the sale in 1997?
2. Using an electronic spreadsheet, prepare an amortization schedule for the notes. Assume interest is calculated annually and use numbers expressed in millions of dollars. That is, the face amount is \$1,800.
3. What was the effect on HP's earnings in 1997? Explain.
4. From the amortization schedule, determine the book value of the debt at the end of 2000.
5. What journal entry did Hewlett-Packard use to record the early extinguishment of debt in 2000 assuming the purchase was made at the end of the year?

Case 14-2
2
Convertible Debt
Hewlett-Packard
Company

The Jockle Group, Inc., manufactures various kinds of hydraulic pumps. In June 2006, the company signed a contract with the Jockle Group, Inc., to purchase 100,000 units of the Jockle Group, Inc. hydraulic pumps. The Jockle Group, Inc. has agreed to sell the pumps at a price of \$200,000. The Jockle Group, Inc. has agreed to sell the pumps at a price of \$200,000.

Jockle's chief accountant has proposed recording the note receivable at \$200,000. The Jockle Group, Inc. has agreed to sell the pumps at a price of \$200,000.

Required

Do you agree with the accountant's statement of the note and his intention to value the note receivable at \$200,000? Explain your answer.

The Patel Print Company recently loaned \$300,000 to KTX 96, a local radio station. The radio station agrees to provide Patel with a specified amount of free radio advertising over the next 12 months.

Patel's chief accountant has proposed recording the note receivable at \$300,000. The Patel Print Company has agreed to provide Patel with a specified amount of free radio advertising over the next 12 months. The Patel Print Company has agreed to provide Patel with a specified amount of free radio advertising over the next 12 months.

Patel's chief accountant has proposed recording the note receivable at \$300,000. The Patel Print Company has agreed to provide Patel with a specified amount of free radio advertising over the next 12 months. The Patel Print Company has agreed to provide Patel with a specified amount of free radio advertising over the next 12 months.

On January 1, 2005, Brewster Company issued 2,000 of its five-year, \$1,000 face amount, 14% bonds dated January 1, 2005, at an effective annual interest rate (yield) of 9%. Brewster uses the effective interest method of amortization. On December 31, 2006, the 2,000 bonds were extinguished early through acquisition in the open market by Brewster for \$1,000,000. On July 1, 2006, Brewster issued 5,000 of its six-year, \$1,000 face amount, 10% convertible bonds dated July 1, 2006, at an effective annual interest rate (yield) of 12%. The convertible bonds are convertible at the option of the investor into Brewster's common stock at a ratio of 10 shares of common stock for each bond. Brewster uses the effective interest method of amortization. On July 1, 2006, an investor in Brewster's convertible bonds tendered 500 bonds for conversion into 5,000 shares of Brewster's common stock which had a market value of \$105 per share at the date of the conversion.

- a. Were the 14% bonds issued at par, at a discount, or at a premium? Why?
- b. Would the amount of interest expense for the 14% bonds using the effective interest method of amortization be higher in the first or second year of the life of the bonds issue? Why?
2. a. How should gains or loss on early extinguishment of debt be determined? Does the early extinguishment of the 14% bonds result in a gain or loss? Why?
- b. How should Brewster report the early extinguishment of the 14% bonds on the 2006 income statement?
3. a. Would recording the conversion of the 10% convertible bonds into common stock under the book value method affect net income? What is the rationale for the book value method?
- b. Would recording the conversion of the 10% convertible bonds into common stock under the market value method affect net income? What is the rationale for the market value method?

(AICPA adapted.)

The cloudy afternoon mirrored the mood of the conference of Division Managers. Claude Meyer, assistant to the controller for Huna Manufacturing, wore one of the gloomy faces that was just emerging from the conference. The Division Managers were gathered in the main hall of the Huna Manufacturing Company.

The Division Managers were gathered in the main hall of the Huna Manufacturing Company. The Division Managers were gathered in the main hall of the Huna Manufacturing Company. The Division Managers were gathered in the main hall of the Huna Manufacturing Company.

Later that night he sat alone in his office, comparing and reexamining the preliminary financial statements on his computer monitor. Suddenly his mood brightened. "This may work," he said aloud, though no one could hear. Fifteen minutes later he congratulated himself. "Yes!"

The next day he eagerly explained his plan to Susan. He supposed that the plan involves \$300 million in convertible bonds issued three years earlier.

Alfred: By swapping stock for the bonds, we can eliminate a substantial liability from the balance sheet, cut most of our interest expense, and reduce our loss. In fact, the book value of the bonds is significantly less than the market value of the stock we'd issue. I think we can produce a profit.

Rory: But Claude, our bondholders are not inclined to convert the bonds.

Alfred: Right. But the bonds are callable. As of this year, we can call the bonds at a call premium of 10%. Given the choice of accepting their redemption price or converting to stock, they'll all convert. As with the swap, if a call price of 10% is paid, we won't pay again either.

Rory:

Do you perceive an ethical dilemma? What would be the impact of following up on Claude's plan? Who would benefit? Who would be injured?

Analysis of the company's financial statements, financial leverage, interest coverage

LO1

1. Read a company's large proprietary data on customer trends, company position in the market, the distribution, and sale of a variety of food products. Industry averages are derived from *Troy's Food Service of Business and Industrial Financial Reports*. Following are the 2006 and 2005 comparative income statements and balance sheet of IFF. The total debt is the sum of the total financial statements and the known information for the company. The total debt is the sum of the company's total debt and the company's total debt.

IFF FOODS COMPANY
Years Ended December 31, 2006 and 2005
(\$ in millions)

| Comparative Income Statements | | 2006 | 2005 |
|--|--|---------|---------|
| Net sales | | \$4,440 | \$5,500 |
| Cost of goods sold | | 3,667 | 3,289 |
| Gross profit | | 773 | 2,211 |
| Operating expenses | | 961 | 891 |
| Operating income | | 312 | 1,320 |
| Interest expense | | 541 | 431 |
| Income from operations before tax | | 693 | 889 |
| Income taxes | | 161 | 178 |
| Net income | | \$ 497 | \$ 440 |
| Comparative Balance Sheets | | | |
| Assets | | | |
| Total current assets | | \$ 479 | \$ 490 |
| Property, plant, and equipment, net | | 3,127 | 2,287 |
| Intangible net | | 800 | 654 |
| Other assets | | 73 | 0 |
| Total assets | | \$5,479 | \$4,431 |
| Liabilities and Shareholders' Equity | | | |
| Total current liabilities | | \$1,473 | \$ 941 |
| Long-term debt | | 538 | 728 |
| Deferred income taxes | | 407 | 364 |
| Total liabilities | | 2,418 | 2,033 |
| Shareholders' equity: | | | |
| Common stock | | 180 | 180 |
| Additional paid-in capital | | 21 | 63 |
| Retained earnings | | 2,930 | 2,154 |
| Total shareholders' equity | | 3,061 | 2,397 |
| Total liabilities and shareholders' equity | | \$5,479 | \$4,431 |

Long-term solvency refers to a company's ability to pay its long-term obligations. Financing activities include issuing and repurchasing securities with an indication of true element of risk.

Required:

1. Calculate the debt to equity ratio for IFF for 2006. The average ratio for the stocks listed on the New York Stock Exchange in a comparable time period was 1.1. What information does this ratio provide to investors?

2. Is IFF experiencing favorable or unfavorable financial leverage?

3. Calculate KGF's times interest earned ratio for 2006. The coverage for the stocks listed on the New York Stock Exchange in a comparable time period was 5. What does your calculation indicate about KGF's risk?

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, processing, acceptance and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. (Some foreign companies do so voluntarily.) Form 10-K, including the annual report, is required to be filed on EDGAR. The SEC makes this information available to the Internet.

EDGAR

- Access EDGAR on the Internet using EdgarScan at edgarsec.sba.gov/edgar.html.
- Search for Procter & Gamble. Access its 2004 10-K filing. Search or scroll to find the financial statements and related notes.
- What is the total debt (including current liabilities and deferred taxes) reported on the balance sheet? How has that amount changed over the most recent two years?
- Compare the total liabilities (including current liabilities and deferred taxes) with the shareholders' equity and calculate the debt to equity ratio for the most recent two years. Has the proportion of debt financing and equity financing changed recently?
- Does P&G obtain more financing through notes, bonds, or commercial paper? Are required debt payments increasing or decreasing over time? Is any long-term debt classified as short-term or vice versa? Why?

CPA SIMULATION 14-1

Use company
information



Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by experiencing our CPA simulations of the test website at www.kaplancpareview.com.

The Ace Company simulation tests your knowledge of a) the way we account for and report bonds from the perspective of both the issuer and investor, b) reporting the cash flows related to bonds, and c) capitalization of interest on funds provided by bonds and used to construct a building, as we studied in Chapter 14.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and professional accounting standards to conduct research, derive solutions, and communicate conclusions related to these issues in a simulated environment headed by the following interactive intro:

Financial Accounting and Reporting

Time Elapsed
0:00 / 1:00

Question 1 of 10: Bond Investments Reporting

Research Requirements

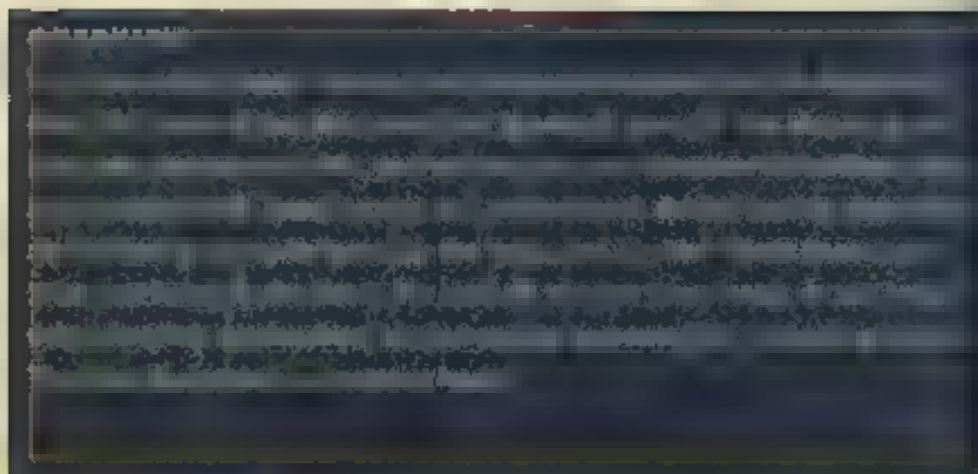
Specific tasks in the simulation include:

- Determining the selling price of bonds and analyzing the way an investor should report an investment in bonds.
- Applying judgment to the classification of cash flows from bond transactions on a statement of cash flows.
- Determining the amount of interest to be capitalized as part of the cost of an asset constructed with funding provided by bonds.
- Demonstrating an understanding of the way interest is calculated on debt.
- Communicating the way we account for convertible debt and debt with detachable warrants.
- Researching the way early extinguishment of debt is reported.

15

CHAPTER

Leases

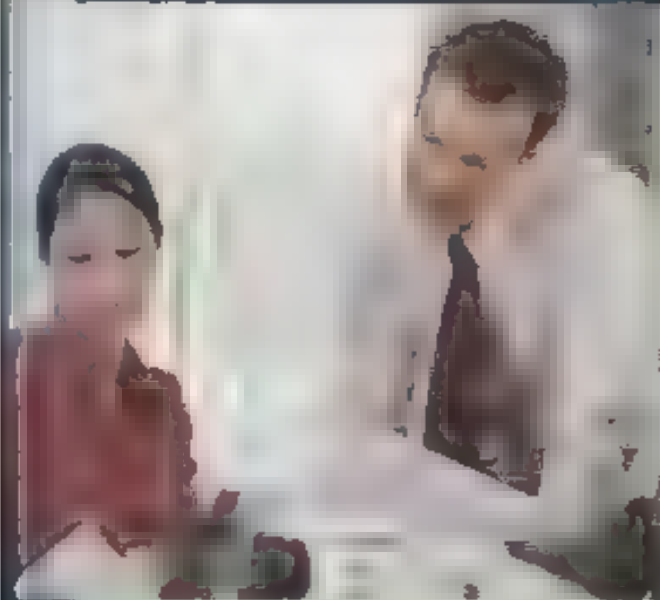


After studying this chapter, you should be able to:

LEARNING OBJECTIVES

- LO1 Identify and describe the operational, financial, and tax objectives that motivate leasing.
- LO2 Explain why some leases constitute mere agreements and some represent purchases/sales accounted for by debt financing.
- LO3 Explain the basis for each of the criteria and concessions used to classify leases.
- LO4 Record all transactions associated with operating leases by both the lessee and lessor.
- LO5 Describe and demonstrate how both the lessee and lessor account for a nonoperating lease.
- LO6 Describe and demonstrate how the lessor accounts for a sales-type lease.
- LO7 Explain how lease accounting is affected by the residual value of a leased asset.
- LO8 Describe the way a bargain purchase option affects lease accounting.
- LO9 Explain the impact on lease accounting of asperity costs, the discount rate, initial direct costs, and termination benefits.
- LO10 Explain sale-leaseback agreements and other special leasing arrangements and their accounting treatment.

FINANCIAL REPORTING CASE



It's a Hit!

"Don't get too comfortable with those big numbers," says Aaron Samuels, controller for your new employer. "It's likely our revenues will take a hit over the next couple of years as more of our customers lease our machines rather than buy them."

You've just finished your first look at Higher Graphics' third quarter earnings report. Like most companies in your industry, HG leases its labeling machines to some customers and sells them to others. Eager to understand the implica-

tions of your new supervisor's concerns, you pull out your old intermediate accounting book and turn to the leases chapter.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

1. How would HG's revenues "take a hit" as a result of more customers leasing rather than buying labeling machines? (page 717)
2. Under what kind of leasing arrangements would the "hit" not occur? (page 726)

PART A ACCOUNTING BY THE LESSOR AND LESSEE

We all are familiar with leases. If you ever have leased an apartment, you know that a lease is a contractual arrangement by which a lessor (owner) provides a lessee (user) the right to use an asset for a specified period of time. In return for this right, the lessee agrees to make stipulated, periodic cash payments during the term of the lease. An apartment lease is a typical rental agreement in which the fundamental rights and responsibilities of ownership are retained by the lessor; the lessee merely uses the asset temporarily. Businesses, too, lease assets under similar arrangements. These are referred to as **operating leases**. Many companies, though, also formulated outwardly as leases, but in reality are installment purchase contracts. These are called capital leases (direct financing or sales-type leases to the lessor). Graph 75-1 compares the possibilities.

GRAPHIC 75-1

Basic lease
Classifications

| Lessee | Lessor |
|-----------------|------------------------|
| Operating lease | Operating lease |
| Capital lease | Direct financing lease |
| | Sales-type lease |

After looking at some of the possible advantages of leasing assets rather than buying them in certain circumstances, we will explore differences in leases further.



FIGURE 75-1

DECISION MAKERS' PERSPECTIVE—Advantages of Leasing

When a young entrepreneur started a computer training center a few years ago, she had no idea how fast her business would grow. Now, while she knows she needs computers, she doesn't know how many. Just starting out, she also has little cash with which to buy them.

The manual funds department of a large investment firm often needs new computers and peripherals—fast. The department manager knows he can't afford to wait up to a year, the time it sometimes takes, to go through company channels to obtain purchase approval.

An established computer software publisher recently began developing a new line of business software. The senior programmer has to be certain he's testing the company's products on the latest versions of computer hardware. And yet he views large expenditures on equipment subject to rapid technological change and obsolescence as risky business.

Each of these individuals is faced with different predicaments and concerns. The entrepreneur is faced with uncertainty and cash flow problems, the department manager with constraints and bureaucratic control systems, the programmer with fear of obsolescence. Though their specific concerns differ, these individuals have all met their firms' immediate technology needs with the same solution: each has decided to lease the computers rather than buy them.

Computers are by no means the only assets obtained through leasing arrangements. In fact, contrary to popular belief, leasing has grown to be the most popular method of external financing of certain assets in America. The airplane in which you last flew probably was leased, as was the car from which it departed. Your favorite retail outlet at the local shopping mall likely leases the space it operates. Many companies actually exist for the sole purpose of acquiring assets and leasing them to others. And, leasing often is a primary method of "selling" a firm's products. IBM and Boeing are familiar examples.

The U.S. Navy once leased floor oil slickers—asked Congress for appropriations.

In light of its popularity, you may be surprised that leasing usually is more expensive than owning. Of course, the higher apparent cost of leasing is because the lessee usually shoulders almost none of the economic risks. Much of this burden is shifted to the lender. So, the price is high.

In lease agreements, the lessor often is a financial institution. A financial institution is a lender that considers its assets as loans to be made to lessees. Sometimes, the lessor is a company that has made large, one-time purchases. For example, a computer firm might be an appropriate lessor. If a business has recently started, it may be an excellent candidate to lease machinery. If we lease here it from a firm that can deduct the cost of the original purchase from its income by leasing, we can often do better than buying. By allowing the lessor to take the depreciation and other benefits from depreciation deductions, the lessee often can negotiate lower lease payments. Lessees with sufficient taxable income to take advantage of the depreciation deductions, but still in lower tax brackets than lessors, also can achieve similar indirect tax benefits.

The desire to obtain "off-balance-sheet financing" also is sometimes a leasing stimulus. When funds are borrowed to purchase an asset, the liability has a detrimental effect on the firm's debt-equity ratio and other quantifiable indicators of riskiness. Similarly, the purchase of an asset increases total assets and correspondingly lowers calculations of the rate of return on assets. Despite research that indicates otherwise, management actions continue to drive a belief that the financial market is naive and is fooled by off-balance-sheet financing. Managers continue to avoid reporting assets and liabilities by leasing rather than buying, and by constructing lease agreements in such a way that capitalizing the assets and liabilities is not required.

Whether or not there is any real effect on security prices, sometimes off-balance-sheet financing helps a firm avoid exceeding contractual limits on designated financial ratios (like debt to equity ratio, for instance).³ When the operational, tax, and financial market advantages are considered, the net cost of leasing often is less than the cost of purchasing.

Capital Leases and Installment Notes Compared

We learned in the previous chapter how to account for an installment note. To a great extent, for our purposes, we returned now to account for a capital lease. To illustrate let's recall the example we used in the previous chapter. We assume that SLJ Graphics purchased a package-labeling machine due to its purchase from Hughes Barker Corporation by leasing a three-year machine that required six semiannual payments of \$19,857 each. This machine provided the repurchase of the \$60,000 machine as well as the use of an asset that would cost \$40,000 to five each year. Remember, too, that each installment payment contained both interest (7% times the outstanding balance) and part payment of the machine's remainder so that they could.

Now let's suppose that SLJ Graphics instead acquired the package-labeling machine from Hughes Barker Corporation under a three-year lease that required six semiannual rental payments of \$19,857 each. Obviously, the fundamental nature of the transaction remains the same regardless of whether it is negotiated as an installment purchase or as a lease. What would be inconsistent to account for this lease is a fundamentally different way than an installment purchase.

³ For example, see the discussion of capital leases in the previous chapter. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution.

⁴ For example, see the discussion of capital leases in the previous chapter. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution.

⁵ For example, see the discussion of capital leases in the previous chapter. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution. The discussion of capital leases in the previous chapter is based on the assumption that the lessor is a financial institution.

| Account | Debit | Credit |
|------------------|-------|--------|
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |

| Account | Debit | Credit |
|------------------|-------|--------|
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |
| Lease receivable | | |
| Lease payable | | |

GRAPHIC 15-2
Lease Amortization
Schedule

| Date | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|------|----------|--------------------|---------------------|---------------------|
| 1 | 119,857 | 27,666.42 | 92,191 | 573,441 |
| 2 | 119,857 | 27,666.42 | 92,191 | 473,250 |
| 3 | 119,857 | 27,666.42 | 92,191 | 367,059 |
| 4 | 119,857 | 27,666.42 | 92,191 | 257,868 |
| 5 | 119,857 | 27,666.42 | 92,191 | 148,677 |
| 6 | 119,857 | 27,666.42 | 92,191 | 39,486 |
| 7 | 119,857 | 27,666.42 | 92,191 | 0 |

| At Inception (January 1) | | |
|--------------------------|---------|---------|
| Installment Note | | |
| Machine | 666,633 | |
| Note payable | | 666,633 |
| Capital Lease | | |
| Leased machinery | 666,633 | |
| Lease payable | | 666,633 |

Consistent with the nature of the transaction, interest expense accrues each period at its effective rate times the outstanding balance:

| At the First Semiannual Payment Date (June 30) | | |
|--|--------|---------|
| Installment Note | | |
| Interest expense 7% (\$666,633) | 46,664 | |
| Lease payable difference | 93,193 | |
| Cash installment payment | | 139,857 |
| Capital Lease | | |
| Interest expense 7% (\$666,633) | 46,664 | |
| Lease payable difference | 93,193 | |
| Cash installment payment | | 139,857 |

Because the lease payable balance declines with each payment, the interest becomes less each period. An amortization schedule is convenient to track the changing amounts as shown in Graphic 15-2.

| Date | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|------|----------|-----------------------|---------------------|---------------------|
| | | 7% Outstandg. balance | | |
| 1 | 119,857 | 27,666.42 | 92,191 | 573,441 |
| 2 | 119,857 | 27,666.42 | 92,191 | 473,250 |
| 3 | 119,857 | 27,666.42 | 92,191 | 367,059 |
| 4 | 119,857 | 27,666.42 | 92,191 | 257,868 |
| 5 | 119,857 | 27,666.42 | 92,191 | 148,677 |
| 6 | 119,857 | 27,666.42 | 92,191 | 39,486 |
| 7 | 119,857 | 27,666.42 | 92,191 | 0 |

Continued

You should recognize this as essentially the same amortization schedule we used in our previous chapter in connection with our installment note example. The reason for the similarity is that we view a capital lease as being, in substance, equivalent to an installment purchase. So naturally the accounting treatment of the two essentially identical transactions should be consistent.

Lease Classification

A lease is accounted for as either a rental agreement or a purchase/sale accompanied by debt financing. The choice of accounting method hinges on the nature of the leasing arrangement.

Leases are agreements that we identify as being formulated outwardly as leases but which are in reality equivalent purchases. Sometimes the true nature of an arrangement is obvious. For example, a five-year noncancelable lease of a computer with a 10-year useful life, by which it is passed to the lessee at the end of the lease term, obviously more re-

Some extent of
at the time of the lease
agreement.

represents a purchase than a rental agreement. But what if the terms of the contract do not transfer title, and the lease term is for only seven years of the asset's 10-year life? Suppose the actual terms permit the lessee to obtain title under certain prespecified conditions? What compensation provided by the lease contract is nearly equal to the value of the asset under use? These situations are less clear-cut.

Professional judgment is needed to differentiate between leases that represent rental agreements and those that in reality are purchase/sale deals. The essential question whether the lease is a sale and how the ownership has been transferred to the lessee. But professional judgment is needed to make this distinction in practice. We desire to encourage the FASB to provide guidance for distinguishing between the lease and purchase/sale. Finally, As you study, be alert at all times in the following paragraphs, keep in mind for some cases clear-cut lease situations we give you, but there still is a gray area somewhere. We agree the way we deal with these we end up with a classification category or the other by somewhat arbitrary criteria.

CLASSIFICATION CRITERIA

A lease should be classified as a capital lease if it includes a noncancelable lease term and one or more of the four criteria listed in Graphs 15-3 are met.¹ Otherwise, it is an operating lease.

As an example, consider a lease of an office building for 10 years. The lease is noncancelable and the lessee is responsible for all maintenance and repairs. The lease is classified as a capital lease.

* 103

1. The lease includes the purchase option if the asset transfers to the lessee for a lump-sum purchase price that is less than the fair value of the asset at the end of the lease term.
2. The lease term is 75% or more of the expected economic life of the asset.
3. The present value of the minimum lease payments is equal to or greater than 75% of the fair value of the asset.

GRAPH 15-3

Criteria for Classification as a Capital Lease

Let's look closer at these criteria.

Since our objective is to determine when the risks and rewards of ownership have been transferred to the lessee, the first criterion is self-evident. If legal title passes to the lessee at the end of the lease term, obviously ownership attributes are transferred.

A **bargain purchase option (BPO)** is a provision in the lease contract that gives the lessee the option of purchasing the leased property at a bargain price. This is defined as a price sufficiently lower than the expected fair value of the property (when the option becomes exercisable) that the exercise of the option appears reasonably assured at the inception of the lease. Because exercise of the option appears reasonably assured, transfer of ownership is expected. So the logic of the second criterion is similar to that of the first. Applying criterion 2 in practice, though, often is more difficult because it is necessary to make judgment now about whether a future option price will be a bargain.

If an asset is leased for most of its useful life, then most of the benefits and responsibilities of ownership are transferred to the lessee. We presume, quite arbitrarily, that 75% or more of the useful economic life of the asset is an appropriate threshold point for this purpose.

Although the intent of this criterion is fairly straightforward, implementation sometimes complicates the picture. For example, the lease term may be subject to a renewal option. Or the lease may be cancellable after a designated or cancellable period. When either of these occurs, ordinarily, we add the lease term to the lease option period term of the lease

to determine whether the lease term is 75% or more of the expected economic life of the asset.

For example, if the lease term is 75% or more of the expected economic life of the asset, the lease is classified as a capital lease.

Criterion 3: lease term is 75% of economic life

1. The lease includes the purchase option if the asset transfers to the lessee for a lump-sum purchase price that is less than the fair value of the asset at the end of the lease term. 2. The lease term is 75% or more of the expected economic life of the asset. 3. The present value of the minimum lease payments is equal to or greater than 75% of the fair value of the asset.

plus any periods covered by bargain renewal options.² A bargain renewal option gives the lessee the option to renew the lease at a bargain rate. That is, the rental payment is sufficiently lower than the expected fair rental of the property at the date the option becomes exercisable that exercise of the option appears reasonably assured.

ADDITIONAL CONSIDERATION

For a bargain renewal option to be included in the lease term of a bargain purchase option is counted in the lease term because the lease term should not extend beyond the date at which the bargain purchase option is exercisable. For a bargain renewal option to be included in the lease term, however, we presume that the option would not be exercised after the initial five-year term making the renewal option irrelevant.

Another major problem is determining the economic life of the leased property. In determining the economic life, the lessee is expected to be a prudent lessee. The lessee is not to be a prudent lessee if the lessee is not a prudent lessee. The lessee is not a prudent lessee if the lessee is not a prudent lessee. This uncertainty prevents the opportunity to arrive at estimates that cause a third criterion not to be met.

Finally, if the inception of the lease occurs during the last 25% of an asset's economic life, this third criterion does not apply. This is consistent with the basic premise of this criterion that most of the risks and rewards of ownership occur during the first 75% of an asset's life.

If the lease payments required by a lease contract substantially pay for a leased asset, it is logical to identify the arrangement as a lease equivalent to an installment purchase. This criterion is considered to exist when the present value of the minimum lease payments is equal to or greater than 90% of the fair value of the asset at the inception of the lease. In general, minimum lease payments are payments the lessee is required to make in connection with the lease. We look closer at the make-up of minimum lease payments later in the chapter.

The 90% recovery criterion often is the decisive one. As mentioned earlier, lessees try to avoid writing a lease agreement that will require recording an asset and liability. While this is an objective, it usually is relatively easy to avoid meeting the first three criteria. However, when the underlying motive for the lease agreement is that the lessee substantially requires the asset, it is more difficult to avoid meeting the 90% recovery criterion. New ways, though, continually are being devised to structure leases to avoid meeting this criterion. Later we will look at some popular devices that are used.

Again consistent with the basic premise that most of the risks and rewards of ownership occur during the first 75% of an asset's life, this fourth criterion does not apply if the inception of the lease occurs during the last 25% of an asset's economic life.

ADDITIONAL LESSOR CONDITIONS

As we saw in the previous section, the lessee accounts for a capital lease as if an asset were purchased—records both an asset and a liability at the inception of the lease. Consistent with this, it would suggest that the lessor in the same lease transaction should record the sale of an asset. Indeed, consistency is a goal of the FASB's lease accounting standards. The four classification criteria discussed in the previous section apply to both parties to the transaction. The lessor also is required to record the sale of an asset if a lessor is required to record the sale of an asset.

Criterion 4: Present value of payments is 90% of fair value

| Classification | Lessee | Lessor |
|----------------------------|--------|--------|
| 1. Transfer of ownership | Yes | Yes |
| 2. Bargain purchase option | Yes | Yes |
| 3. Bargain renewal option | Yes | Yes |
| 4. 90% recovery criterion | Yes | Yes |
| 5. 75% of economic life | Yes | Yes |
| 6. 90% of fair value | Yes | Yes |
| 7. 75% of economic life | Yes | Yes |
| 8. 90% of fair value | Yes | Yes |
| 9. 75% of economic life | Yes | Yes |
| 10. 90% of fair value | Yes | Yes |

In addition, it is necessary also to satisfy the conditions of the realization principle we discussed in Chapter 3. In particular, the FASB specifies that for the lessor to record a lease as a direct financing lease or a sales-type lease, two conditions must be met in addition to two of the four classification criteria. These are listed in Graphic 15-4.

The collectibility of the lease payments must be reasonably predictable and any costs to the lessor have yet to be incurred (they are reasonably predictable if performance by the lessee is substantially complete).

GRAPHIC 15-4
Additional Conditions
for Classification as a
Nonoperating Lease by
the Lessor

In the case of a sales-type lease (discussed later in Part 4 of this chapter) in which the lessor recognizes sales revenue, the reason for these additional conditions is apparent: collectibility of payments and substantial completion of the earnings process are conditions of the revenue realization principle. This logic is extended to agreements classified as direct financing leases. Although sales revenue is not recorded in a direct financing lease, the leased asset is removed from the lessor's books and is replaced by a receivable.

Although uniformity of classification is a goal of lease accounting standards, it is obvious that the additional conditions allow inconsistencies.¹ Indeed, in lease negotiations an objective of the parties involved often is to devise terms that will result in a sale by the lessor but an operating lease by the lessee.²

In the remaining sections of Part A of this chapter we consider, in order, operating leases; direct financing leases (capital leases to the lessor); and sales-type leases (capital leases to the lessee).

Additional conditions for classification as a nonoperating lease are consistent with criteria of the revenue realization principle.

Operating Leases

If a lease does not meet any of the criteria for a capital lease it is considered to be more in the nature of a rental agreement and is referred to as an operating lease.¹⁰ We assume that the fundamental rights and responsibilities of ownership are retained by the lessor. Since the lessee merely is using the asset temporarily, no long-term presumption is affected nor recorded by the lessor. A purchase is not recorded by the lessee. Instead, the periodic rental payments are an expenditure, merely in realty, by both parties. The annual rental expense by the lessor and rent expense by the lessee.

Let's look at an example that illustrates the relatively straightforward accounting for operating leases. The earlier example comparing a capital lease to an installment purchase showed rental payments at the end of each period. A more typical leasing arrangement requires rental payments at the beginning of each period. The more rental payment schedule is assumed in Illustration 15-1.

Journal entries for Illustration 15-1 are shown in Illustration 15-2A.

In an operating lease, rent is recognized on a straight-line basis unless another systematic method more clearly reflects the benefits of the asset's use. So, if rental payments are uniform, for instance, if rent increases are scheduled, or the total scheduled payments ordinarily could be expensed equally (straight-line basis) over the lease term.

ADVANCE PAYMENTS

Many lease agreements call for advance payments to be made at the inception of the lease that exceed prepaid rent. For instance, it is common for a lessee to pay a bonus in return for negotiating more favorable lease terms. Such payments are recorded as prepaid rent and allocated equally on a straight-line basis to rent expense over the lease term. So the rent fee is periodically reported in these cases consists of the periodic rent payments themselves plus an allocated portion of prepaid rent. This is demonstrated in Illustration 15-2B.

FINANCIAL RECORDING CASE

Case 15-1

Case 15-1

¹⁰ The term *operating lease* is not in a generally accepted accounting principle (GAAP) glossary, but it is used in this text.

¹¹ The term *operating lease* is not in a generally accepted accounting principle (GAAP) glossary, but it is used in this text.

¹² The term *operating lease* is not in a generally accepted accounting principle (GAAP) glossary, but it is used in this text.

ILLUSTRATION 15-1 Application of Classification Criteria

On January 1, 2006, Sans Serif Publishers, Inc., a computer services and printing firm, lease a color copier from CompuDoc Corporation.

The lease agreement specifies four annual payments of \$100,000 beginning January 1, 2006, the inception of the lease, and at each January 1 through 2009. The useful life of the copier is estimated to be six years.

Had Sans Serif Publishers, Inc. purchased the copier for its cash price of \$479,079, it would have received a 10% discount. The lease is classified as follows by the classification criteria:

| | |
|--|--|
| 1. Does the agreement specify that ownership in the asset transfers to the lessee? | No |
| 2. Does this agreement contain a bargain purchase option? | No |
| 3. Is the lease term equal to 75% or more of the expected economic life of the asset? | No
4 yrs. of 6 yrs. |
| 4. Is the present value of the minimum lease payments equal to or greater than 90% of the fair value of the asset? | No
$\begin{aligned} \$48,605 &= 10\% \text{ of } \$479,079 \\ \$100,000 &= 3.46605 \times \$240,650 \\ &= 3.46605 \times \$240,650 \end{aligned}$ |

Since none of the four classification criteria is met, this is an operating lease.

Present value of an annuity due of \$100,000 at 10% for 4 periods from Chapter 5 that we refer to periodic payments of the lease is \$340,650.

ILLUSTRATION 15-1A Journal Entries for an Operating Lease

At the beginning of the lease term, the lessee records a debit to prepaid rent and a credit to cash for the amount of the first payment.

The operating lease described in Illustration 15-1 is recorded as follows:

At Each of the Four Payment Dates

| | | |
|---|---------|---------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Prepaid rent | 100,000 | |
| Cash | | 100,000 |
| CompuDoc Corporation (Lessor) | | |
| Cash | 100,000 | |
| Accumulated depreciation | | 100,000 |

At the End of Each Year

| | | |
|---|---------|---------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Rent expense | 100,000 | |
| Prepaid rent | | 100,000 |
| CompuDoc Corporation (Lessor) | | |
| Accumulated depreciation | 100,000 | |
| Depreciation expense | | 100,000 |
| Accumulated depreciation | | |

At the end of each year, the lessee records a debit to rent expense and a credit to prepaid rent for the amount of the first payment.

Sometimes advance payments include security deposits that are refundable at the expiration of the lease or prepayments of the next period's rent. A refundable security deposit is recorded as a long-term receivable (by the lessee) and liability (by the lessor) unless it is expected to be returned. A prepayment of the next period's rent is recorded as prepaid rent and a liability to rent expense/rent revenue during the next period of the lease term.

At times, lease agreements call for uneven rent payments during the term of the lease. One way this can occur is when the initial payment (or maybe several payments) is less (or more) than the others.

Alternatively, rent payments may be scheduled to increase periodically over the lease term. In any event, the total rent over the term of the lease is allocated to individual periods on a straight-line basis. This means the (temporarily) unpaid portion of rent expense must be credited to deferred rent expense payable until later in the lease term when rent payments exceed rent expense.

Assume Sans Serif paid a \$40,000 bonus (advance payment) at the inception of the lease described in Illustration 15-1 in return for lower periodic payments—\$90,000 each.

At the Inception of the Lease

| | | |
|---------------------------------------|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Prepaid rent (bonus payment) | 40,000 | |
| Cash | | 40,000 |
| Computer Corporation (Lessor) | | |
| Cash | 40,000 | |
| Unearned rent revenue (bonus payment) | | 40,000 |

At Each of the Four Payment Dates

| | | |
|--|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Expense (rent/periodic payment) | 90,000 | |
| Cash | | 90,000 |
| Computer Corporation (Lessor) | | |
| Unearned rent revenue (periodic rent payments) | | 90,000 |

At the End of Each Year

| | | |
|--------------------------------------|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Prepaid rent (annual rent) | 90,000 | |
| Expense (rent) | | 90,000 |
| Expense (bonus amortization) | 0,000 | |
| Prepaid rent (\$40,000 ÷ 4) | | 10,000 |
| Computer Corporation (Lessor) | | |
| Cash | 90,000 | |
| Unearned rent revenue | | 90,000 |
| Prepaid rent (\$40,000 ÷ 4) | | 10,000 |

ILLUSTRATION 15-10

Journal Entries— Operating Lease with Advance Payment

At the inception of the lease, the lessee records the advance payment as a prepaid rent asset and the lessor records the advance payment as unearned rent revenue.

At each payment date, the lessee records the periodic payment as an expense and the lessor records the periodic payment as revenue.

LEASEHOLD IMPROVEMENTS

At times a lessee will make improvements to leased property that reverts back to the lessor at the end of the lease. If a lessee constructs a new building or makes modifications to existing structures that are represented as assets just like any other capital expenditure. Like other assets, its cost is allocated as depreciation expense over its useful life or the lease term, whichever will be the shorter of the physical life of the asset or the lease term.¹² Theoretically, such assets can be recorded in accounts descriptive of their nature, such as buildings or plant in practice, the traditional account title used is leasehold improvements.¹³ In any case, the depreciated cost usually is reported in the balance sheet under the caption *property, plant, and equipment*. Movable assets like office furniture and equipment that are not attached to leased property are not considered leasehold improvements.

During 2005 hundreds of companies, particularly in the retail and restaurant industries, reflected use of the most widespread accounting correction events ever. Corrections were the way these companies, including *Pep Boys*, *Ann Taylor*, *Target*, and *Dominio's Pizza*, allocated the cost of leasehold improvements. Rather than expensing leasehold improvements properly over the lease terms, these firms for years had inappropriately expensed the

cost of leasehold improvements as an expense at the time of construction, thus reducing their useful life to the lessee.

Hundreds of firms in 2005 corrected the way they accounted for leases.

¹² If the lease term is shorter than the useful life of the improvement, the cost of the improvement should be depreciated over the lease term. If the lease term is longer than the useful life of the improvement, the cost of the improvement should be depreciated over the useful life of the improvement. If the lease term is equal to the useful life of the improvement, the cost of the improvement should be depreciated over the lease term.

cost over the longer estimated useful lives of the properties. Prompting the sweeping criticism was a Securities and Exchange Commission letter on February 7, 2005, urging companies to show long-deferring accounting entries rather than a credit in the equity practices with the same expense (the net accounting entries for net income). Although it stated a required charge of \$300 million from the fourth quarter is adjusted for inflation.

Let's go back to the 100 new TVs accounting for leases. Further, the entire net method is for classification as nonoperating leases by both the lessee and the lessor.

Nonoperating Leases—Lessee and Lessor

• LOS

In the operating lease illustration, we assumed Sam's Serial leased a copier directly from its manufacturer. Now let's assume a financial intermediary provided financing by acquiring the copier and leasing it to the user. A financial intermediary avoids unnecessary confusion that adjusting entries might create; the example in Illustration 5-2 on the next page assumes that the inception of the lease, as well as subsequent rental payments, are made at the end of both companies' fiscal years.¹⁵

Traditionally, the lessee uses the net method to record leases, and the lessor uses the gross method.¹⁶ As you study the entries in Illustration 5-2, keep in mind that both methods achieve the same result, and the net method is either method for the lessee.

The amount recorded (capitalized) by the lessee is the present value of the minimum lease payments. However, if the fair value of the asset is lower than the present value of the lease payments, the asset should be recorded at fair value. (Since the lessor is a manufacturer or dealer, the fair value typically will be the lessor's cost (\$479,079 in this case). However, if considerable time has elapsed between the purchase of the property by the lessor and the inception of the lease, the fair value might be different. When the lessor is a manufacturer or dealer, the fair value of the property at the inception of the lease ordinarily will be its normal selling price (reduced by any volume or trade discounts). We study this sales-type lease later; in unusual cases, market conditions may cause fair value to be less than the normal selling price.

Be sure to note that the entire \$100,000 first rental payment is applied to principal reduction.¹⁷ Because it occurred at the inception of the lease, no interest had yet accrued. Subsequent rental payments include interest on the outstanding balance as well as a reduction in that balance that outstanding balance. As if the lease had been financed at 3% interest, we would find the \$100,000 balance outstanding during 2007 recorded in Illustration 5-2A.

Notice that by either the net method (lessee) or the gross method (lessor), the entire liability balance is reduced by \$62,092—the portion of the \$100,000 payment remaining after interest is covered. The lease liability is reduced directly (the reduction in the net receivable is the combined effect of reducing the gross receivable by \$100,000 and unearned interest revenue a valuation (contra) account, by \$37,908.¹⁸

A lease that transfers substantially all of the benefits and risks incident to ownership of property should be accounted for as the acquisition of an asset and the inurrence of an obligation by the lessee and as a sale (financing by the lessor).

lower

during the period.

| | At Inception of Lease | At End of Year 1 | At End of Year 2 | At End of Year 3 | At End of Year 4 | At End of Year 5 | At End of Year 6 | At End of Year 7 | At End of Year 8 | At End of Year 9 | At End of Year 10 |
|---------------------------|-----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Net Receivable | \$479,079 | \$417,087 | \$355,095 | \$293,103 | \$231,111 | \$169,119 | \$107,127 | \$45,135 | \$0 | \$0 | \$0 |
| Unearned Interest Revenue | \$0 | \$37,908 | \$75,816 | \$113,724 | \$151,632 | \$189,540 | \$227,448 | \$265,356 | \$303,264 | \$341,172 | \$379,080 |
| Lease Liability | \$0 | \$37,908 | \$75,816 | \$113,724 | \$151,632 | \$189,540 | \$227,448 | \$265,356 | \$303,264 | \$341,172 | \$379,080 |

Another way to view this is that at the first \$100,000 payment, the remaining \$479,079 is financed by \$37,908 in interest.

¹⁵Not deep enough to report to Congress as a liability, an operating lease does not require disclosure of the cash flows. But when the cash is received in advance of the revenue being earned, and thus a liability, this becomes reportable. The SEC has been clear that the cash flows should be reported as a liability. The SEC has also been clear that the cash flows should be reported as a liability. The SEC has also been clear that the cash flows should be reported as a liability.

December 31, 2006, Sans Serif Publishers, Inc., leased a copier from First Lease Corp. First Lease Corp. purchased the equipment from CompuDec Corporation at a cost of \$100,000.

The lease agreement specifies annual payments beginning December 31, 2006, the inception of the lease, and at each December 31 through 2011. The lease term is equal to the estimated useful life of the asset.

First Lease Corp. is not a dealer in equipment leased to other firms. The interest rate on these financing arrangements is 6%.

Since the lease term is equal to the expected useful life of the asset, the lease should be recorded by the lessee as a **capital lease**.¹ If the lessee makes payments and an asset to the lessor that are virtually equal to the value of the asset, the lease is a **direct financing lease**.² Because First Lease Corp. must also cover its own cost of the asset as well as its own operating expenses, the rental payments would be \$100,000.

$$\$479,079 \div 4.79079^3 = \$100,000$$

Lessors' Rental
cost payments

³Present value of an annuity due of \$1 at 6% = 4.79079

Of course, Sans Serif Publishers, Inc., views the transaction from the other side. The price the lessee pays for the copier is the present value of the rental payments:

$$\$100,000 \times 4.79079^3 = \$479,079$$

Rental Lessee's
payments cost

³Present value of an annuity due of \$1 at 6% = 4.79079

Direct Financing Lease (December 31, 2006)⁴

Sans Serif Publishers, Inc. (Lessee)

Lease liability (present value of lease payments)

479,079

Lease receivable (present value of lease payments)

479,079

Interest expense (6% × 479,079)

28,741

Lease liability (present value of lease payments)

479,079

Lease receivable (present value of lease payments)

479,079

First Lease Payment (December 31, 2006)⁵

Sans Serif Publishers, Inc. (Lessee)

Lease liability

100,000

Cash

100,000

Interest expense (6% × 100,000)

6,000

Lease liability

100,000

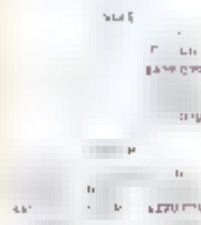
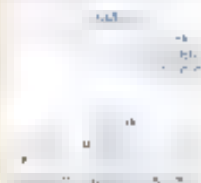
The amortization schedule in Graphic 15-3 shows how the lease liability and the effective rate change over the six-year lease term.

Each rental payment after the first includes both an amount that represents interest and an amount that represents a reduction of principal. The periodic reduction of principal is sufficient that, at the end of the lease term, the outstanding balance is zero.

ILLUSTRATION 15-2
Nonoperating Leases

Rental payments are made at the end of each period. The value of the asset is equal to the lessor's cost.

Interest expense is recorded at the end of each period. The value of the asset is equal to the lessor's cost.



¹ The lease liability is the present value of the lease payments. $\$479,079 \div 4.79079 = \$100,000$ of the fair value of the asset. ² The lease liability is the present value of the lease payments. $\$479,079 \div 4.79079 = \$100,000$ of the fair value of the asset.

ILLUSTRATION 15-2A

Journal Entries for the Second Lease Payment

| | |
|-----------------------------------|---------|
| Debit | Credit |
| Interest expense 37,920 | |
| Lease payable (difference) 62,079 | |
| | 100,000 |
| | Cash |
| | 100,000 |

Second Lease Payment (December 31, 2007)

| | |
|---|---------|
| Sans Serif Publishers, Inc. (Lessee) | |
| Interest expense | 37,920 |
| Lease payable (difference) | 62,079 |
| | 100,000 |
| First Lease Corp. (Lessor) | |
| Cash (Net cash payment) | 100,000 |
| Lease receivable | |
| | 100,000 |
| Unearned interest revenue | |
| Interest revenue (1% × \$600,000) | 6,000 |

GRAPHIC 15-5

Lease Amortization Schedule

The first annual payment of \$100,000 does not include interest.

The total of the cash payments is \$600,000.

The total of the cash payments is \$600,000.

2. Interest of \$120,921 at an effective rate of 10%.

| Dec 31 | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|--------|----------|-------------------------|---------------------|---------------------|
| | | 10% Outstanding balance | | |
| 2006 | | | | 600,000 |
| 2007 | 100,000 | 60,000 | 40,000 | 500,000 |
| 2008 | 100,000 | 50,000 | 50,000 | 450,000 |
| 2009 | 100,000 | 45,000 | 55,000 | 395,000 |
| 2010 | 100,000 | 39,500 | 60,500 | 334,500 |
| 2011 | 100,000 | 33,450 | 66,550 | 267,950 |
| 2012 | 100,000 | 26,795 | 73,205 | 194,745 |
| 2013 | 100,000 | 19,475 | 80,525 | 114,220 |
| 2014 | 100,000 | 11,422 | 88,578 | 25,642 |
| 2015 | 100,000 | 2,564 | 97,436 | 0 |

Adjusted for rounding of interest numbers is the balance.

An interesting aspect of the amortization schedule that you may want to note at this point relates to a disclosure requirement that we discuss at the end of the chapter. Among the things, the lessee and lessor must report separately the current and noncurrent portions of the outstanding lease balance. Both amounts are provided by the amortization schedule. For example, if we want the amounts to report on the 2007 balance sheet, refer to the second column of the schedule. The portion of the 2008 payment that represents principal is \$60,000, and the interest portion is \$40,000. The noncurrent amount is the balance outstanding at the 2008 reduction, \$450,000. The current amount is the current and noncurrent lease liability for the lessee and the current and noncurrent net investment for the lessor.

DEPRECIATION

Depreciation is recorded for leased assets in a manner consistent with the lessee's usual policy for depreciating its operational assets.

Be sure to apply the same policy to the leased asset as you would to the owned asset.

End of Each Year

| | |
|---|--------|
| Sans Serif Publishers, Inc. (Lessee) | |
| Depreciation expense (\$479,079 ÷ 6 years) | 79,847 |
| Accumulated depreciation | 79,847 |

If the lessee depreciates upon the straight-line method.

Depreciation Period. The lessee normally should depreciate a leased asset over the useful life of the asset. However, if ownership transfers or a bargain purchase option is present, either of the first two classification criteria is met, the asset should be depreciated over its useful life. This means depreciation is recorded over the useful life of the asset, the same as if the asset were owned.

A description of leased assets and related depreciables provided in a recent disclosure document 5-6. Kroger Company is representative of these asset structures.

5. PROPERTY, PLANT AND EQUIPMENT, NET

Property, plant and equipment, net consists of:

| | 2003 | 2002 |
|---|--------|-----------|
| Land | \$ 5.9 | \$ 35.7 |
| Buildings and improvements | 4,435 | 3,947 |
| Equipment | 782 | 7,583 |
| Construction in progress | 636 | 802 |
| | 5,425 | 17,479 |
| Accumulated depreciation and amortization | 247 | 16,861 |
| Total | \$ 5.1 | \$ 10,418 |

GRAPHIC 15-6

Disclosure of Leased Assets—Kroger Company

ACCRUED INTEREST

If a financial reporting period ends at any time between payment dates, it is necessary to accrue (as an adjusting entry) any interest that has accrued since interest was last recorded. We purposely avoided this step in the previous illustration by assuming that the lease agreement specified rental payments on December 31—the end of the reporting period. But if payments were made on another date, or if the company's fiscal year ended on a date other than December 31, accrued interest would be recorded prior to preparing financial statements. For example, if the inception of the lease had been a day later (January 1, 2006) and rental payments were made on January 1 of each year, the effective interest amounts shown in the lease amortization schedule in 6 would be appropriate but would be recorded one day later (the actual rental payment). For instance, the second cash payment of \$100,000 would be on January 1, 2006, but the interest component of that payment (\$37,908) would be accrued a day earlier as shown in Illustration 15-2B.

Notice that this is consistent with recording accrued interest on any debt, whether in the form of a note, a bond, or a lease.

We assumed in this illustration that First LeaseCorp bought the copier for \$479,079 and sold it to the lessee at the same price. There was no profit in the sale to the lessee. The only income earned by the lessor was interest revenue earned over the lease term. In effect, First LeaseCorp financed the purchase of the copier by State-Sent Publishers. This type of lease is a direct financing lease. This kind of leasing is a thriving industry. It is a profitable part of operations for banks and other financial institutions. "Come up with one of the largest." Some large companies do nothing else. Often leasing companies, like TBM Credit Corporation, are subsidiaries of larger corporations formed for the sole purpose of conducting financing operations for their parent corporations.

As each financial statement date, any interest that has accrued since interest was last recorded must be accrued for all liabilities and expenses, including those relating to leases.

ILLUSTRATION 15-28

Journal Entries When Interest Is Accrued Prior to the Lease Payment

December 31, 2007 (No accrual interest)

| | | | |
|---|-----------------------|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | | |
| Interest expense 10% | (\$19,908 × .10 × 12) | 37,908 | |
| Lease payable | | | 37,908 |
| First LeaseCorp (Lessor) | | | |
| Lease receivable | | | 37,908 |
| Interest revenue | | | 37,908 |
| Second Lease Payment (January 1, 2008) | | | |
| Sans Serif Publishers, Inc. (Lessee) | | | |
| Interest payable (for adjusting entry above) | | 37,908 | |
| Lease payable difference (for rental payment) | | | 10,000 |
| First LeaseCorp (Lessor) | | | |
| Cash | | 10,000 | |
| Lease receivable | | | 10,000 |

CONCEPT REVIEW EXERCISE

DIRECT FINANCING LEASE

United Cellular Systems leased a satellite transmission device from Pinnacle Leasing Services on January 1, 2007. Pinnacle paid \$625,483 for the transmission device (its fair market value is \$625,483).

Terms of the Lease Agreement and Related Information:

| | |
|----------------------------|------------------------------------|
| Lease term | 3 years (6 semiannual periods, |
| Semiannual rental payments | \$120,000 beginning of each period |
| Economic life of asset | 3 years |
| Interest rate | 12% |

Required:

- Prepare the appropriate entries for both United Cellular Systems and Pinnacle Leasing Services on January 1, the inception of the lease.
- Prepare an amortization schedule that shows the pattern of interest expense for United Cellular Systems and interest revenue for Pinnacle Leasing Services over the lease term. Prepare the appropriate entries recorded the second lease payment on July 1, 2007, and adjusting entries on December 31, 2007 (the end of both companies' fiscal year).

SOLUTION

Calculation of the present value of minimum lease payments:

$$(\$120,000 \times 5.71236^*) = \$625,483$$

*Present value of an annuity due of \$1, $n = 6$, $i = 12\%$

January 1, 2007

| | | | |
|---|--|---------|---------|
| United Cellular Systems (Lessee) | | | |
| Leased equipment (calculated above) | | | |
| Lease payable (calculated above) | | | |
| Pinnacle Leasing Services (Lessor) | | | |
| Cash | | 625,483 | |
| Lease receivable | | | 625,483 |

Example: Leasing Service Equipment

Prepare an amortization schedule that shows the pattern of interest expense for United Cellular Systems and interest revenue for Pinnacle Leasing Services over the lease term.

| Date | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|------|----------|----------------------------|---------------------|---------------------|
| | | <i>Outstanding balance</i> | | |
| 07 | | | | 505,483 |
| 07 | 24,300 | | 20,000 | 505,483 |
| 07 | 120,000 | $06 (505,483) = 30,329$ | 89,671 | 415,812 |
| 08 | 20,000 | $06 (415,812) = 24,949$ | 95,051 | 320,761 |
| 08 | 120,000 | $06 (320,761) = 19,246$ | 100,754 | 220,007 |
| 09 | 120,000 | $06 (220,007) = 13,200$ | 106,800 | 113,207 |
| 09 | 120,000 | $06 (113,207) = 6,793^*$ | 113,207 | 0 |
| | 720,000 | 94,517 | 625,483 | |

* Rounding of dollar amounts in this schedule.

Picture the appropriate entries to record the second lease payment on July 1, 2007, and the interest on December 31, 2007 (the end of both companies' fiscal years).

July 1, 2007

| | | |
|------------------------------------|--------|---------|
| United Cellular Systems (Lessee) | | |
| Lease expense 505,483 | 20,000 | 30,329 |
| Lease liability difference | | 89,671 |
| Cash payment | | 120,000 |
| Pinnacle Leasing Services (Lessor) | | |
| Cash | | 120,000 |
| Lease receivable | | 505,483 |

December 31, 2007

| | | |
|--|---------|---------|
| United Cellular Systems (Lessee) | | |
| Lease expense 80,518 (from schedule) | 24,949 | 24,949 |
| Lease liability | | 24,949 |
| Depreciation expense (\$625,483 ÷ 3 years) | 208,494 | |
| Accumulated depreciation | | 208,494 |
| Pinnacle Leasing Services (Lessor) | | |
| Interest revenue | | 13,200 |
| Lease receivable | | 113,207 |

2d. Although not all leases are sales-type leases, in which the lessor is a manufacturer or reseller of the leased assets, the lessor must determine whether the lease is a sales-type lease or a financing lease.

Sales-Type Leases

A sales-type lease differs from a direct financing lease in only one respect. In addition to the revenue earned over the lease term, the lessor receives a manufacturer's or dealer's

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ILLUSTRATION 15-3 Sales-Type Lease

| | |
|----------------------|-----------|
| Sales revenue | \$879,679 |
| Cost of goods sold | 300,000 |
| Gross profit | \$579,679 |
| Depreciation expense | |
| Interest expense | |
| Interest income | |
| Gain on sale | |

| | |
|----------------------------|--|
| Estimated interest income | |
| Estimated interest expense | |
| Estimated interest income | |
| Estimated interest expense | |
| Estimated interest income | |
| Estimated interest expense | |
| Estimated interest income | |
| Estimated interest expense | |

profit on the "sale" of the asset.²¹ This additional profit exists when the fair value of the asset (usually the present value of the minimum lease payments, or "selling price") exceeds the cost or carrying value of the asset sold. Accounting for a sales-type lease is the same as for a direct financing lease except for recognizing the profit at the inception of the lease.²²

Illustrate the process by our previous illustration. Assume a fact: the value given Sans Serif Publishers (used the topic) from CompuDoc Corporation (seller) is \$879,679. The carrying value of the asset is \$300,000. The gross profit is \$579,679. The lease payments are \$10,000 per year for 10 years. The present value of the lease payments is \$79,679. The gross profit is \$579,679. This sales-type lease is demonstrated in Illustration 15-3.

On December 31, 2006, Sans Serif Publishers leased a copier from CompuDoc Corporation at a price of \$479,679.

The lease agreement specifies annual payments of \$10,000 beginning December 31, 2006, through December 31, 2016. The six-year lease term is equal to the estimated useful life of the copier. The carrying value of the copier is \$300,000. The interest rate for financing is 10%.

Sales-Type Lease*

CompuDoc Corporation (Lessor)

| | |
|---|----------|
| Lease receivable (\$10,000 × 6) | \$60,000 |
| Inventory of equipment (lessor's cost) | |
| Unearned lease revenue (\$60,000 × 10%) | 6,000 |
| Gain on sale (\$879,679 - \$300,000) | 579,679 |

First Lease Payment*

CompuDoc Corporation (Lessor)

| | |
|---|----------|
| Lease receivable | \$10,000 |
| Unearned lease revenue (\$10,000 × 10%) | 1,000 |
| Interest income (\$10,000 × 10%) | 1,000 |
| Interest expense (\$10,000 × 10%) | 1,000 |
| Interest income (\$10,000 × 10%) | 1,000 |
| Interest expense (\$10,000 × 10%) | 1,000 |

You should recognize the similarity between recording both the revenue and cost components of this sale by lease and recording the same components of other sales transactions. In the sale of any product, gross profit is the difference between sales revenue and cost of goods sold.

All entries other than the entry at the inception of the lease, which includes the gross profit on the sale, are the same for a sales-type lease and a direct financing lease.

Accounting by the lessee is not affected by how the lessor classifies the lease. All journal entries are precisely the same as in the previous illustration of a direct financing lease.

Graphic 15-7 shows the relationships among various lease components, using data amounts from the previous illustration.

²¹ This profit is the difference between the fair value of the asset and its carrying value. The carrying value is the cost of the asset less accumulated depreciation.

²² In a sales-type lease, the lessor recognizes a profit at the inception of the lease. In a direct financing lease, the lessor recognizes a profit over the term of the lease.

PERSPECTIVE

In Japan and Italy, there are no accounting requirements regarding nonoperating leases. All leases in those countries are accounted for as operating leases by both lessors and lessees. Most other industrial nations differentiate between operating and nonoperating leases. The International Accounting Standards Board (IASB) has not yet issued any accounting standards that distinguish between operating and nonoperating leases. Although conceptually similar, IASB standards provide specific guidance only for all nonoperating leases.

| SALES-TYPE LEASE | | CAPITAL LEASE | |
|-----------------------------|----------------------------|-----------------------------|--|
| Gross Investment in Lease* | \$600,000 | Minimum Lease Payments | |
| | Less: | | |
| | Unearned during lease term | | |
| | \$ 21,979 | | |
| | Equals | | |
| Selling Price | \$579,029 | Purchase Price | |
| (Present value of payments) | | (Present value of payments) | |
| | Less: | | |
| | Cost of sale | | |
| | \$179,029 | | |
| | Equals | | |
| Cost to Lessor | \$400,000 | (Irrelevant to lessee) | |

*The gross investment in the lease also would include any unguaranteed residual value in addition to the minimum payments. No unguaranteed value guaranteed by the lessee is included in the minimum lease payments (only payments made by the lessee).

GRAPHIC 15-7

Lease Payment Relationships

The difference between the total payments and the selling price at the end of the lease represents the lessor's profit.

If the lease is higher than the cost, the lessor realizes a profit on the sale.

RESIDUAL VALUE AND BARGAIN PURCHASE OPTIONS

PART B

Residual Value

The residual value of leased property is an estimate of what its commercial value will be at the end of the lease term. In our previous examples of nonoperating leases, we assumed that residual value was negligible. But now let's consider the possible effect of a leased asset that does have a residual value and how that will affect the way both the lessor and the lessee view the lease agreement.

Suppose the copier leased in Illustration 15-3 was expected to be worth \$60,000 at the end of the six-year lease term. Should this influence the lessor's (CompuDee) calculation of periodic rental payments? Other than the possible influence on rental payments, should the lessor (SaaS Soft Publishers) be concerned with the residual value of the leased assets? The answer to both questions is maybe. We'll use modified Illustration 15-4 to see why. In deciding whether the residual value affects how the lease is recorded, the first question influences the answer is "Who gets the residual value?"

• LO7

WHEN THE RESIDUAL VALUE IS GUARANTEED BY THE LESSEE

Whenever the lease agreement includes a guarantee by the lessee that the lessor will recover each dollar residual value when custody of the asset reverts back to the lessor at the end of the lease term, this guaranty feature is the lessee's obligation and provides incentive for the lessee to receive a better service. Care is taken during the lease term to maintain the asset. Otherwise, though the lessee promises to return one-half the property back to the lessor, it must provide the lessor with a minimum amount in the form of cash or property. The guaranteed residual value is a part of the lease payment that is to be paid in property, or cash, or both. As such, it is included in the minimum lease payments and affects the amount the lessee records as well as the lessor's record of a lease liability, as shown in Illustration 15-4B.

| | |
|---|------------------|
| Present value of periodic rental payments (\$92.931 × 4 = 2079) | \$445.2 |
| Plus: Present value of the residual value (\$10,000 × .90471) | 33,868 |
| Present value of minimum lease payments
(Recorded as a leased asset and a lease liability) | <u>\$479,079</u> |

ILLUSTRATION 15-4B

Lessee's Calculation of the Present Value of Minimum Lease Payments, including a Guaranteed Residual Value

Now let's see how the lessee's calculation of the amount to capitalize is precisely the same as the lessor's calculation of periodic rental payments. This is because when the residual value is guaranteed, both view it as an additional lease payment. In accordance with SFAS 13, the guaranteed residual value is a component of the minimum lease payments for both the lessor and lessee.²¹ We see in Graphic 15-8 how this affects the accounting for the lease as reflected in the lease amortization schedule for CompuDec and Sans Serif.

| Dec. 31 | Payments | Effective Interest | | Decrease in Balance | Outstanding Balance |
|---------|----------|--------------------|-----------------------------|---------------------|---------------------|
| | | 2% | Initial outstanding balance | | |
| 12/31 | | | | | \$70,670 |
| 1996 | \$92,931 | | | \$2,331 | 386.48 |
| 1997 | \$92,931 | 1.128446% | 784.5 | \$47.6 | 70,632 |
| 1998 | \$92,931 | 1.236321% | 33.63 | \$9.40 | 272.384 |
| 1999 | \$92,931 | 1.342904% | 2.208 | \$5.23 | 266.36 |
| 2000 | \$92,931 | 1.406361% | \$0.196 | \$2.95 | 14,066 |
| 2001 | \$92,931 | 1.53406% | \$3.407 | \$7.24 | \$8,542 |
| 2002 | | 1.64342% | \$4.58* | \$5.742 | 0 |
| | \$6,566 | | 38,507 | \$2,779 | |

* Balance is rounded to the nearest dollar.

GRAPHIC 15-8

Amortization schedule with Residual value

During the lease term, the lessee and the lessor should agree that the lease is a lease. The lessee should not be able to cancel the lease at any time, and the lessor should not be able to cancel the lease at any time.

The lessee should not be able to cancel the lease at any time, and the lessor should not be able to cancel the lease at any time.

Be aware of several points the amortization schedule reveals. First, the six periodic cash payments are now \$92,931, as we calculated previously. Notice also that we now include the \$10,000 residual value as an additional lease payment. Despite the different composition of minimum lease payments, their present value, \$479,079, is the same as when we assumed \$10,000 periodic payments and no residual value. Furthermore, the effective interest

²¹ SFAS 13 requires the lessee to calculate the present value of the minimum lease payments by discounting the cash flows at the rate of the lease agreement. The lessor should use the rate of the lease agreement to calculate the present value of the minimum lease payments.

The lessor's gross investment in the lease is the sum of periodic rental payments and any residual value.

ILLUSTRATION 15-4C

Sales-Type Lease with Guaranteed Residual Value

| | |
|--------------------|-----------|
| Sales revenue | \$479,079 |
| Cost of goods sold | 10,000 |
| Debtors, net | 469,079 |

Sales-Type Lease, December 31, 2000

| | | |
|--|---------|---------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Leased equipment (present value of lease payments) | 479,079 | |
| Lease payable (present value of lease payments) | | 479,079 |
| CompuDec Corporation (Lessor) | | |
| Cost of goods sold (present value of minimum lease payments) | 469,079 | |
| Sales revenue (present value of minimum lease payments) | | 479,079 |
| Inventory of equipment (lessor's cost) | | |

First Lease Payment, December 31, 2000

| | | |
|---|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Lease payable | 92,937 | |
| Cash | | 92,937 |
| CompuDec Corporation (Lessor) | | |
| Cash | 92,937 | |
| Lease receivable | | 92,937 |

Note that the lease receivable is the same as the lease payable.

Notice, too, that the timing of the \$92,937 payment is December 31, 2000, the end of the lease term. Remember, the final periodic cash payment on December 31, 2011, is the beginning of the final year. The journal entries that accompany this final cash payment are shown in Illustration 15-4D.

ILLUSTRATION 15-4D

Entries to Accompany Final Period's Payment

The residual value reduces the net investment receivable and is \$4,937.

As the outstanding balance becomes negative, the lease term is complete and the payment that represents interest also becomes less.

December 31, 2011

| | | |
|---|--------|--------|
| Sans Serif Publishers, Inc. (Lessee) | | |
| Depreciation expense (\$4,937 / 10 years) | 493.7 | |
| Accumulated depreciation | | 4,937 |
| Interest expense (0% X outstanding balance) | 0.00 | |
| Lease payable (difference) | 92,937 | |
| Cash (total payment) | | 92,937 |
| CompuDec Corporation (Lessor) | | |
| Cash | 92,937 | |
| Lease receivable | | 92,937 |
| Interest revenue (0% X outstanding balance) | 0.00 | |

*The depreciation is reduced by the lessor-guaranteed residual value.

Illustration 15-4F

Sales-Type Lease with Unguaranteed Residual Value

Dealer's profit is the same as when the

equipment is sold outright. The dealer's profit is the same as when the equipment is sold outright. The dealer's profit is the same as when the equipment is sold outright.

Sales-Type Lease

Sara Seiff Publishers, Inc. (Lessor)

Leased equipment (present value of lease payments)

445,211

Lease payable (present value of lease payments)

445,211

CompuDec Corporation (Lessor)

Lease receivable ($1992.931 \times .61 = 580,000$)

Unearned interest revenue ($580,000 - 445,211 = 134,789$)

Inventory of equipment (lessor's cost)

First Lease Payment

Sara Seiff Publishers, Inc. (Lessor)

Lease payable

92,931

Cash

92,931

CompuDec Corporation (Lessor)

Cash

92,931

Lease receivable

Adjusted for rounding of the numbers in the schedule, the minimum lease payments, which do not include the unguaranteed residual value.

The lessor's net lease receivable is \$479,079, as described in all earlier amortization schedules, even when the residual value is not guaranteed. However, the lessor's net liability would be only \$445,211 at the inception of the lease and would become zero with the final payment at the beginning of the final year, with reductions occurring in accordance with the pattern described by the schedule in Graphic 15-9.

Graphic 15-9

Lessors' Amortization Schedule—Residual Value Not Guaranteed

Because the residual value is not guaranteed, the lessor's net liability is the same as when the equipment is sold outright. The dealer's profit is the same as when the equipment is sold outright.

| Dec. 31 | Payments | Effect of Interest | | Decrease in Balance | Outstanding Balance |
|---------|----------|-------------------------|---------|---------------------|---------------------|
| | | 0% .01 = ending balance | | | |
| 1996 | | | | | 445,211 |
| 2000 | 92,931 | | | 92,931 | 352,280 |
| 2001 | 92,931 | 10,352 | 25,238 | 57,703 | 294,577 |
| 2002 | 92,931 | 10,294 | 29,410 | 63,473 | 231,104 |
| 2003 | 92,931 | 10,224 | 34,110 | 64,622 | 166,482 |
| 2004 | 92,931 | 10,154 | 39,220 | 64,613 | 101,869 |
| 2005 | 92,931 | 10,084 | 44,751 | 82,880 | 19 |
| | 455,886 | | 142,379 | 445,211 | |

Adjusted for rounding of the numbers in the schedule.

When the residual value is not guaranteed, the lessor bears any loss that results from the actual residual value of the leased asset being less than the original estimate.

Graphic 15-10 summarizes the effect of the residual value of a leased asset for each of its various possibilities regarding the nature of the residual value.

Bargain Purchase Options**• LOS**

We mentioned earlier that a bargain purchase option (BPO) is a provision of some lease contracts that gives the lessee the option of purchasing the leased property at a bargain price. We discussed BPOs in the context of how they affect the classification of leases, but not in our earlier illustrations the used a situation in which a BPO was present. You should use

lessor residual value of a leased asset included in

| | the Lessor | | the Lessee's | |
|--|-------------------------------|-----------------------------|------------------------|-------------------|
| | a | b | c | d |
| | Basic investment in the asset | Net investment in the asset | Minimum lease payments | Asset & Liability |
| | 100,000 | 100,000 | 100,000 | |
| | 7,000 | 7,000 | 7,000 | |
| | 107,000 | 107,000 | 107,000 | |
| Lessee gets the residual value (by tender or exercise of the expected exercise or a bargain purchase option) | Yes | Yes | Yes | No |
| Lessor gets the residual value (the does not transfer the bargain purchase option) | No | No | No | No |
| * Residual value is not guaranteed | Yes | Yes | Yes | No |
| * Residual value is guaranteed by the lessee | No | No | No | Yes |
| * Residual value is guaranteed by the fully guaranteed | Yes | Yes | Yes | No |

When the lessor guarantees the residual value in the lease, the residual value is included in the computation of the lessor of the net investment in the asset. When the lessee guarantees the residual value, the residual value is included in the computation of the lessee's net investment in the asset. When the lessor guarantees the residual value, the residual value is included in the computation of the lessor's net investment in the asset. When the lessee guarantees the residual value, the residual value is included in the computation of the lessee's net investment in the asset.

that a bargain price is defined in such a way that an additional cash payment is expected when a BPO is included in the agreement. Remember, a bargain price is one that is sufficiently below the property's expected fair value that the exercise of the option appears virtually assured. Because exercise of the option appears at the inception of the lease to be virtually assured, payment of the option price is expected to occur when the option becomes exercisable.

The logic applied to lessee-guaranteed residual values in the previous section applies here as well. The expectation that the option price will be paid effectively adds an additional cash flow to the lease for both the lessor and the lessee. That additional cash flow is included as a component of the periodic lease payments for both the lessor and the lessee. If the option price is included in the computation of the amount to be capitalized (as an asset and liability) by the lessor, in fact, the way a BPO is included in these calculations is precisely the same way that a lessee-guaranteed residual value is included. This is demonstrated in Graphic 15-11.

GRAPHIC 15-10
Effect of a Residual Value: A Summary

When a BPO is present in the lease agreement, the lessor and the lessee both include the option price in the computation of the net investment in the asset.

- The lessor, when computing periodic rental payments, subtracts the present value of the BPO from the amount of the lessor's expected fair market value. The lessor must be recovered from the lessee through the periodic payments.
- The lessee adds the present value of the BPO price to the net investment in the asset. The lessor adds the present value of the BPO price to the net investment in the asset.

GRAPHIC 15-11
Effect of a Bargain Purchase Option

Emphasize the similarity in the way a lessee-guaranteed residual value and a BPO affect the calculations. Let's assume the \$60,000 in our last illustration is an option price that will be paid by Sara Serif at the conclusion of the lease to purchase the copier. To make

When a lessee-guaranteed residual value is included in the net investment in the asset, the lessor and the lessee both include the option price in the computation of the net investment in the asset. When a BPO is present in the lease, the lessor and the lessee both include the option price in the computation of the net investment in the asset.

this a "bargain" purchase option let's say the residual value at the same time is expected to be \$75,000. This situation is assumed in Illustration 15-5.

Illustration 15-5

Bargain Purchase Option

This table is filling in the missing values of the BPO price and the amount that must be recorded from the minimum lease payments.

On December 31, 2000, Sans Serif Publishing leased a color copier from CompuDec Inc. The lease agreement specifies annual payments begin the lease on at each December 31 through the year 4, the end of the six-year lease term. Sans Serif has the option to purchase the copier at the end of the six-year term for seven years.

CompuDec manufactured the copier at a cost of \$300,000.

CompuDec's interest rate for financing the transaction is 10%.

Amount to be recovered (fair market value) \$479,799

Less: Present value of the BPO price (10% 56447*) 33,668

Amount to be recovered through periodic rental payments \$445,931

Rental payments at the beginning of the next six years \$445,931

\$445,931 = 4,790,799

*Present value of \$1: $n = 6$, $i = 10\%$

Present value of annuity for $n = 5$

When you compare the way the BPO affected the lessor's (CompuDec's) calculation with the way the lessee guaranteed residual value affected the calculation earlier in the book, they are exactly the same. That's the reason for the lessor's Sans Serif Publishing's amount in Illustration 15-5A.

Illustration 15-5A

Lesser's Calculation of the Present Value of Minimum Lease Payments When a BPO Is Present

Present value of periodic rental payments \$445,931 = 4,790,799

Plus: Present value of the BPO price (10% 56447*) 33,668

Present value of minimum lease payments (recorded as a leased asset and a lease liability) \$479,600

*Present value of an annuity due of \$1: $n = 6$, $i = 10\%$

Present value of annuity for $n = 5$

Because the BPO is expected to be exercised, the amount is recorded as one more rent payment.

When a BPO is present, the residual value is not recorded as an additional lease payment.

You should recognize this as the same calculation we used when there was no BPO, but the residual value was guaranteed and we were considering an additional lease payment. The question you might have at this point is: Why are we now ignoring the residual value? The answer is: The residual value was considered an additional lease payment. Yet now we view the BPO price just as an initial lease payment but ignore the residual value. The reason is obvious: When a BPO is an essential characteristic of a BPO—it's expected to be exercised. So, when it is exercised, title to the leased asset passes to the lessee and with title, any residual value. And remember, when the lessee gets the residual value, it's recognized by both parties to the lease.

The lease amortization schedule for CompuDec and Sans Serif when a BPO is included in the lease agreement (Figure 15-12) should look familiar to you also.

Recording the exercise of the option is similar to recording the periodic rent payment. That is, a portion of the payment covers interest for the year, and the remaining portion reduces the outstanding balance (to zero with this last payment), as shown in Illustration 15-5B.

*Our discussion of the effect of a bargain purchase option would be precisely the same if our illustration were of a lease contract for the lessee. If the lessee's cost was \$479,600, the cost of assets, which would be the cost of the asset, would be \$479,600.

| Dec. 31 | Payments | Effective interest | Decrease in balance | Outstanding balance |
|---------|----------|---------------------------|---------------------|---------------------|
| | | 10%: Outstanding balance | | |
| 2006 | | | | 479,079 |
| 2006 | 92,931 | | 42,311 | 186,148 |
| 2007 | 92,931 | 10.00% × 186,148 = 18,615 | 54,316 | 131,832 |
| 2008 | 92,931 | 10.00% × 131,832 = 13,183 | 59,748 | 72,084 |
| 2009 | 92,931 | 10.00% × 72,084 = 7,208 | 65,723 | 26,361 |
| 2010 | 92,931 | 10.00% × 26,361 = 2,636 | 70,295 | 34,066 |
| 2011 | 92,931 | 10.00% × 34,066 = 3,407 | 70,224 | 5,842 |
| 2012 | 92,931 | 10.00% × 5,842 = 584* | 54,146 | 0 |
| | 674,556 | 36,500 | 479,079 | |

*Rounded to the nearest dollar.

GRAPHIC 15-12
Amortization
Schedule with BPO

Both the lessor and lessee use the BPO method. The BPO is the present value of the lease payments.

| December 31, 2012 | | | |
|---|-------|---------|---------|
| Sans Serif Publishers, Inc. (Lessee) | | | |
| Debit: Amortization expense (\$479,079) | years | 68,440 | |
| Credit: Accumulated depreciation | | | 68,440 |
| Debit: Lease expense 10% (\$4,343) | | 5,410 | |
| Credit: Lease payable difference | | 54,142 | |
| Credit: BPO | | | 110 |
| SummaDel Corporation (Lessor) | | | |
| Debit: Cash | | 92,931 | |
| Credit: Lease receivable | | | 92,931 |
| Debit: Lease receivable | | 479,079 | |
| Credit: Cash | | | 479,079 |

*Rounded to the nearest dollar.

ILLUSTRATION 15-5B
Journal Entries—With
BPO

The depreciation expense reflects the fact that the lessee will be using the asset for its full useful life.

Note that depreciation also is affected by the BPO. As pointed out earlier, the lessee normally depreciates a leased asset over the term of the lease. But if ownership transfers by exercise of the expected exercise of a bargain purchase option, the asset should be depreciated over the asset's useful life. This reflects the fact that the lessee anticipates using the leased asset for its full useful life. In this illustration, the copier is expected to be useful for seven years, so depreciation is $68,440$ ($\$479,079 \div 7$ years).

The cash payment expected under the BPO is the sum of the present value of the lease payments and the present value of the cash payments.

WHEN A BPO IS EXERCISABLE BEFORE THE END OF THE LEASE TERM

We assumed in this example that the BPO was exercisable on December 31, 2012—the end of the lease term. This assumption was convenient to illustrate the similarity between how a lease is valued and a BPO is dealt with when accounting for leases. It also is a very realistic assumption. Sometimes, though, the lease contract specifies that a BPO becomes exercisable before the designated lease term ends. Since a BPO is expected to be exercised, the lease term ends for accounting purposes when the option becomes exercisable. For example, if we say the BPO in the previous example could be exercised a year earlier—at the end of a fifth year. The effect this would have on accounting for the lease is to change the lease term from six years to five. All calculations would be modified accordingly. Stated differently, minimum lease payments include only the periodic cash payments specified in the agreement that occur prior to the date a BPO becomes exercisable. (We assume the option is exercised at that time and the lease ends.)

We have seen how minimum lease payments are affected by a residual value and by a bargain purchase option. Let's now consider how maintenance, insurance, taxes, and other costs usually associated with ownership (called *executory costs*) affect minimum lease payments.

The amount of the BPO is the present value of the cash payments expected to be received by the lessor at the end of the lease term.

ETHICAL DILEMMA

"I know we had discussed that they're supposed to be worth \$44,000 when our purchase option becomes exercisable," Farris mused. "That's why we agreed to the lease term. But, Jenkins, you know how fast computers become dated. We can make a good bet that they'll be worth only \$10,000 in three years."

The computers to which Farris referred were acquired by lease. The lease meets none of the criteria for classification as a capital lease except that it contains an apparent bargain purchase option. Under the lease option, the computers can be purchased for \$10,000 after three years.

"We could avoid running up our debt that way," Jenkins agreed.

How could debt be avoided?
Do you perceive an ethical problem?

PART C OTHER LEASE ACCOUNTING ISSUES**Executory Costs**

- LO9** One of the responsibilities of ownership that is transferred to the lessee in a capital lease is the responsibility to pay for maintenance, insurance, taxes, and any other costs usually associated with ownership. These are referred to as executory costs. Lease agreements usually are written in such a way that these costs are borne by the lessee. These expenditures usually are expensed by the lessee as incurred: repair expense, insurance expense, property tax expense, and so on. Let's return, for example, to Illustration 15-2. Now, suppose that a \$100-per-year maintenance agreement was arranged with an outside service for the leased car. Sara Searf (the lessee) would expense this fee each year as incurred:

The lessee simply expenses maintenance costs.

| | | |
|---------------------|-------|-------|
| Maintenance expense | 1,000 | |
| Cash (annual fee) | | 1,000 |

The lessor is unaffected by executory costs paid by the lessee.

Any reduction in total payments to the lessor will increase the amount of the periodic payments. The lessee will pay more for the asset than it would have if it had purchased the asset outright. The lessee's payments will be greater than the minimum lease payments.

Since the lessor is unaffected by executory costs, it will agree that the lessor is to pay executory costs but that the lessee will reimburse the lessor through higher rental payments. When rental payments are inflated for this reason, these executory costs are excluded in determining the minimum lease payments. The costs are expensed by the lessee, even though paid through the lessor. For demonstration, we modify Illustration 15-2 to assume the periodic payments were increased to \$10,000 with the provision the lessor (Pilot) would not pay the maintenance fee. We do this in Illustration 15-4.

Discount Rate

An important factor in the overall lease equation that we've glossed over until now is the discount rate used in present value calculations. Because lease payments occur in future periods, we must consider the time value of money when evaluating their present value. This is important because it influences virtually every amount reported in connection with a lease by both the lessor and the lessee.

The lessor uses the interest rate it has determined as the rate of return on the lease. The lessee uses its own incremental borrowing rate.

The rate is implicit in the lease agreement. This is the effective interest rate the lessor receives on the lease over the term of the lease. It is the rate at which the asset's sale price, the lessor's desired rate of return, the lessor's minimum when including the cost of financing the asset (Keller), or, earlier calculations, the periodic rental payments. Usually the lessor is aware of the asset's implicit rate or can determine it from the asset's fair market value. When the lessor's implicit rate is unknown, the lessee should use its own incremental borrowing rate.

*The Companies form of lease states, "Florida law requires that the interest rate to be explicitly stated in the lease agreement."

- On December 31, 2006, Wynn Seed Publishers, Inc. leased a new copier purchased the equipment from ComputoDesk Corp. for five annual payments of \$ 12,000 beginning December 31. Payments include a which First LeaseCo will use to pay an annual maintenance fee. The interest rate in these financing arrangements is 4% and the lease is for 60 months.

Second Payment (December 31, 2007)

| Sundt Sewer Publishers, Inc. (Lessee) | | |
|---------------------------------------|--------|---------|
| Depreciation expense 2007 less: | | 80 |
| Repaid maintenance paid in 2008 | | 2,311 |
| Interest expense 10% 3479 '17 | 11,000 | 37,908 |
| Cost of labor difference | | 67,097 |
| Less: maintenance 2008 less: | | 2,000 |
| AM maintenance | | 102,000 |
| For 2004 Cost Lessor | | |

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This is the rate the lessee would expect to pay a bank if funds were borrowed to buy the asset. If the lessor's implicit rate is known, the lessee should use the lower of the two rates.²¹

WHEN THE LESSEE'S INCREMENTAL BORROWING RATE IS LESS THAN THE LESSOR'S IMPLICIT RATE

There are few in which the lessee actually would use a incremental borrowing rate. Here's why. We noted earlier that, like any other asset, a leased asset should not be recorded at more than its fair market value. Look what happens to the present value payments if Sam uses a discount rate less than the 10% rate implicit in Illustration 13-6 (let's say 8%):

$$\$100,000 \times 4.81965^* = \$481,965$$

| Rental | Lessee's |
|----------|----------|
| Payments | Cost |

the value of α is 0.05, then $\alpha = 0.05$ and $\alpha = 0.05$

I'll remember the fair market value of the copier was \$479,079. The \$100,000 amount the rental payments was derived by the lessee, contemplating a market value of \$479,079 and a deemed internal rate of return (implicit rate) of 0%. So, using a discount rate lower than the lessee's implicit rate usually would result in the present value of minimum lease payments being more than the fair market value.

This conclusion does not limit when the leased asset has an unguaranteed residual value, so will not affect the lessor's determination of its own residual value that accrues to the lessor by when the lessee does guarantee the residual value if it is not included in the present value calculation. Continuing with the same examples, let's modify our demonstration of an unguaranteed residual value. Illustration 15-6, to assume the lessor's incremental borrowing rate was 9%. Because the residual value was expected to contribute to the lessor's recovery of the \$429,079 fair market value, the rental payments were only \$92,931. But, the lessee would ignore the unguaranteed residual value and calculate its cost of the leased asset as he (\$434,400).

7. This additional low undercurrents also is a likely major trigger for a higher water temperature and a higher sea level, other things being

178

$$\begin{array}{rcl}
 \$92,997 \times 4.849634 & = & \$451,416 \\
 \text{Residual} & & 22,500 \\
 \text{payments} & & 0
 \end{array}$$

*Present value of an annuity due of \$1 at 10%.

In this case, the present value of minimum lease payments would be less than the fair market value even though a lower discount rate is used. But again, if there is no residual value, or if the lessee guarantees the residual value, or if the unguaranteed residual value is relatively small, a discount rate lower than the lessor's implicit rate will result in the present value of minimum lease payments being more than the fair market value.

WHEN THE LESSOR'S IMPLICIT RATE IS UNKNOWN

What if the lessee is unaware of the lessor's implicit rate? This is a logical question in light of the rule that says the lessee should use its own incremental borrowing rate when the lessor's implicit rate is unknown to the lessee. But in practice the lessor's implicit rate usually is known. Even if the lessor chooses not to explicitly disclose the rate, the lessee usually can deduce the rate using information he knows about the value of the leased asset and its lease payments. After all, in making the decision to lease rather than buy, the lessee usually becomes quite knowledgeable about the asset.

Even so, it is possible that a lessee might be unable to derive the lessor's implicit rate. This might happen. For example, if the leased asset has a relatively high residual value, known or a residual value (guaranteed or not) is an ingredient in the lessor's calculation of the lease payments. Sometimes it may be hard for the lessee to identify the residual value as it affects the lessor if the lessor chooses not to make it known.²⁰ The longer the lease term or the more the lessee's use of the leased asset is subject to, the less of a factor the residual value typically is.

ADDITIONAL CONSIDERATION

As you find out later, the management of a lessee company sometimes will lease a capital asset rather than buy it. A lessee might want to lease the asset to take advantage of off-balance-sheet financing. On the other hand, a lessor might want to lease the asset rather than sell it. If other things being equal, we would expect a lessee to be more likely to lease a capital asset than to buy it. Similarly, we would expect a lessor to be more likely to lease a capital asset than to sell it. But what if the lessor's implicit rate is unknown to the lessee? In this case, the lessee might be more likely to lease the asset than to buy it. But what if the lessor's implicit rate is known to the lessee? In this case, the lessee might be more likely to buy the asset than to lease it.

1 Cause the Two Parties to Use Different Interest Rates

It is possible that a lessee might use a discount rate other than the lessor's implicit rate. For example, if the lessor's implicit rate is unknown to the lessee, the lessee might use its own incremental borrowing rate. If higher than the lessor's implicit rate, the present value it produces may cause the 90% of fair value criterion not to be met for the lessee, thus an operating lease even though the criterion is met for the lessor, thus a nonoperating lease.

2 Avoid Including the Residual Value in the Lessee's Minimum Lease Payments

The residual value is guaranteed by the lessee or by a third party guarantee. If included, the minimum lease payments are higher. When applying the 90% of fair value criterion, a high minimum lease payments is more likely to cause the criterion to be met. If the residual value is guaranteed by a third party, the criterion is more likely to be met. If the residual value is not included in the lessee's minimum lease payments, so if a residual value is high and large and guaranteed by a third party, the criterion may cause the 90% of fair value criterion to be met by the lessor, but not by the lessee.

Both situations are entirely legal. They are, however, entirely legal. And, as a result, many companies are using these two methods to avoid the 90% of fair value criterion. This is a legal way to avoid the 90% of fair value criterion.

Lessor's Initial Direct Costs

Costs incurred by the lessor that are associated directly with originating a lease and are similar to those that would be incurred to acquire that lease are referred to as **initial direct costs**. They include legal fees, commissions, evaluating the prospective lessee's financial condition, and preparing and processing lease documents. The method of accounting for initial direct costs depends on the nature of the lease. Remember, a lessor can classify a lease as (1) an operating lease, (2) a direct-financing lease, or (3) a sales-type lease. The accounting treatment for initial direct costs for each of the three possible lease types is summarized below.

1. For **operating leases**, initial direct costs are recorded as assets and amortized over the term of the lease. Since the only revenue an operating lease produces is rental revenue, and that revenue is recognized over the lease term, initial direct costs also are systematically recognized over the lease term to match these costs with the rental revenue they help generate.
2. In **direct-financing leases**, interest revenue is earned over the lease term, so initial direct costs are matched with the interest revenues they help generate. Therefore, initial direct costs are not expensed at the outset but are deferred and recognized over the lease term. This can be accomplished by reducing the lessor's **unearned interest revenue** by the total of initial direct costs. Then, as unearned interest revenue is recognized over the lease term at a constant effective rate, the initial direct costs are recognized at the same rate (that is, proportionally).
3. For **sales-type leases**, initial direct costs are expensed at the inception of the lease. Since the usual reason for a sales-type lease is for a manufacturer or a dealer to sell its product, it's reasonable to recognize the costs of creating the transaction as a selling expense in the period of the sale.

Contingent Rentals

Contingent rentals are payments that may be increased (or decreased) at some future time during the lease term depending on whether or not some specified event occurs. Usually the contingency is related to revenues, profitability, or usage above some designated level. For example, a recent annual report of Wal-Mart Stores included the note re-created in Exhibit 5-1.

Exhibit 5-1

8. Commitments (in part)
 At the end of the period, we provide for contingent rentals which are calculated per store as a percentage of sales. The contractual liability is \$66 million at \$5 per store and \$6.6 million at 2.6% of sales. 2004 expense, zero.

Graphic 15-13

Disclosing of Contingent Rentals—Wal-Mart Stores

Contingent rentals are **not** included in the minimum lease payments because they are not determinable at the inception of the lease. Instead, they are included as components of income when (and if) they occur. Increases or decreases in rental payments that are dependent not on the passage of time but on the occurrence of some event are not contingent rentals; these are part of minimum lease payments.

Although contingent rentals are not included in minimum lease payments, they are required in disclosure notes by both the lessor and lessee.

A Brief Summary

Leasing arrangements often are complex. In studying this chapter you've encountered several features of lease agreements that alter the way we make several of the calculations shown in account for leases. Graphic 5-14 provides a concise review of the essential lease accounting components, using calculations from a hypothetical lease situation to provide a running perspective.



GRAPHIC 15-14 Lease Terms and Concepts: A Summary

| Lease Situation for Calculations | | | | |
|--|--------|---|--|-------|
| Term (years) | 4 | Less: Cost | | \$300 |
| Asset's estimated fair value | 5 | Residual value | | |
| Lessee's obligation to purchase asset | Yes | Guaranteed by lessee | | \$5 |
| Lessee's incremental borrowing rate | 5% | Guaranteed by third party | | \$5 |
| Residual payments (including interest) | | Guaranteed | | \$5 |
| Cost of the equipment at each year | \$ 0.2 | Cost of the asset will annually by lessor | | \$1 |
| | | Guaranteed purchase option | | none |
| | | Guaranteed costs | | 4 |

| Amount | Description | Calculation |
|------------------------------------|--|--|
| Lessor's: | | |
| Cost less sales revenue = the loss | Total of periodic rental payments to plus any residual value not over to the lessor, guaranteed or not plus BPO price | $(\$100 \times 4) + \$8 + \$5$ |
| Net investment in the lease | Present value of the gross investment (discounted at less rate plus any initial direct cost or a lower financing lease) | $(\$100 \times 3.40163) + \$19 + 0.3552$ |
| Imputed interest revenue | On the lessor's main: Net investment | $\$349 - 352$ |
| Minimum lease payments | Total of periodic rental payments plus residual value guaranteed to the lessor (by lessee and/or by third party) plus BPO price | $(\$100 \times 4) + \$8 + \$5 = 0$ |
| Sales revenue | Present value of lessor's minimum lease payments plus net investment (present value of any guaranteed residual value) | $(\$100 \times 3.40163) + \$19 + 0.3552$ |
| Cost of goods sold | Lesser's cost: Present value of guaranteed residual value | $\$300 - \$5 = 0.3552$ |
| Lesser's profit | Sales revenue minus cost of goods sold: Net investment minus cost | $\$349 - 352$ also $\$352 - 300$ |
| Lessee's: | | |
| Minimum lease payments | Total of periodic rental payments plus residual value guaranteed by lessor or plus BPO price ¹ | $(\$100 \times 4) + \8 |
| Leased asset | Present value of minimum lease payments (using lower of lessor's rate or lessee's incremental borrowing rate) cannot exceed fair value | $(\$100 \times 3.40163) + \$19 + 0.3552$ |
| Lease liability at inception | Same as leased asset | $(\$100 \times 3.40163) + \$19 + 0.3552$ |

Footnote: ¹ If any amount guaranteed by the lessee (present value of the lease) is less than the amount paid by the lessee, the amount paid by the lessee is also considered a part of the minimum lease payments.

Any portion of rental payments that represents maintenance, insurance, taxes, or other ancillary costs is not considered part of minimum lease payments.

1. If the lessee's incremental borrowing rate is lower than the lessor's rate, the lessee's rate is used.

2. If the lessee's incremental borrowing rate is higher than the lessor's rate, the lessor's rate is used.

GRAPHIC 15-16
Lessee Disclosure of
Leases—Wal-Mart
Stores

Note 9 Commitments (in part)

The Company has entered into various lease agreements, including those for its retail stores, operating equipment, and office space. The Company's lease portfolio is primarily composed of operating leases with terms ranging from 1 to 10 years. The Company's lease portfolio is primarily composed of operating leases with terms ranging from 1 to 10 years. The Company's lease portfolio is primarily composed of operating leases with terms ranging from 1 to 10 years.

| Fiscal Year | Operating Leases | Capital Leases |
|---|------------------|----------------|
| 2015 | \$ 645 | \$ 430 |
| 2016 | 65 | 42 |
| 2017 | 529 | 41 |
| 2018 | 553 | 4 |
| 2019 | 519 | 29 |
| Thereafter | \$ 678 | 302 |
| Less: minimum rentals | \$ 665 | \$ 086 |
| Less: net present value of minimum lease payments | | 32 |
| Net minimum lease payments | | \$ 042 |
| Less: imputed interest at rates ranging from 4.25% to 10.0% | | 59 |
| Present value of minimum lease payments | | \$3 92 |

Lessee liabilities affect the operating lease portfolio. The operating lease portfolio is a significant component of the lessee's liabilities.

The operating lease portfolio is a significant component of the lessee's liabilities. The operating lease portfolio is a significant component of the lessee's liabilities.

The net income effect of the operating lease portfolio is a significant component of the lessee's liabilities. The operating lease portfolio is a significant component of the lessee's liabilities.

The difference in the balance sheet between operating lease and capital lease is a significant component of the lessee's liabilities. The operating lease portfolio is a significant component of the lessee's liabilities.

BALANCE SHEET AND INCOME STATEMENT

Lease transactions identified as nonoperating impact several of a firm's financial ratios. Because we record liabilities for capital leases, the debt-equity ratio (liabilities divided by shareholders' equity) is immediately impacted. Because we also record leased assets, the immediate impact on the rate of return on assets (net income divided by assets) is negative, but the lasting effect depends on how leased assets are utilized to enhance future net income. As illustrated in this chapter, the financial statement impact of a capital lease is no different from that of an installment purchase.

Even operating leases, though, can significantly affect risk. Operating leases represent long-term commitments that can become a problem if business decisions and cash flow drop off. For example, long-term lease commitments became a big problem for Outboard Motor in the early 1990s. The company's revenues declined but it was saddled with commitments for numerous factories the company no longer occupied. Its stock market price declined from \$11.38 to 5.88 in one year.

Whether leases are capitalized or treated as operating leases affects the income statement as well as the balance sheet. However, the impact generally is not significant. Over the life of a lease, total expenses are equal regardless of the accounting treatment of a lease. If a lease is capitalized, total expenses comprise interest and depreciation. The total of the two equals the total amount of rental payments, which would constitute rent expense if not capitalized. There is, however, a timing difference between lease capitalization and operating lease expenses, but the timing difference usually isn't great.

The more significant difference between capital leases and operating leases is the impact on the balance sheet. As mentioned above, a capital lease adds to both the asset and liability side of the balance sheet. Operating leases do not affect the balance sheet at all. However, some financial statement users adjust their analysis to incorporate the balance sheet differences between capital and operating leases. A frequently offered suggestion is to capitalize noncancelable lease commitments, including those related to operating leases. Some financial analysts, in fact, do this on their own to get a better feel for a company's actual debt position.

To illustrate, refer to Graphic 15-16, which reveals the operating lease commitments chosen by Wal-Mart Stores. If these lease arrangements were considered nonoperating,

these payments would be capitalized (reported at the present value of all future payments). By making some reasonable assumptions, we can estimate the present value of all future payments to be made on existing operating leases. For example, the interest rates used by Wal-Mart to discount rental payments on capital leases range from 4.2% to 14.0%. If we use the approximate average rate of 10%, and make certain other assumptions, we can determine the debt equivalent of the operating lease commitments as shown in Graphic 5-17.

Capitalized Value or Debt Equivalent of Wal-Mart's Operating Leases

| Fiscal Years | Operating Leases | PV Factor 10% | Present Value |
|-----------------------|------------------|---------------|---------------|
| 2005 | \$ 665 | .9 | \$ 604 |
| 2006 | 65 | .826 | 538 |
| 2007 | 599 | .751 | 450 |
| 2008 | 553 | .683 | 378 |
| 2009 | 519 | .621 | 322 |
| Hereafter | 5,678 | .564* | 2,192 |
| Total minimum rentals | \$8,665 | | \$4,484 |

* PV factor is calculated by dividing the PV factor for year 10 by the interest rate of 10%.

If capitalized, these operating lease commitments would add \$4,484 million to Wal-Mart's liabilities and approximately \$4,484 to the company's assets.¹⁰ Let's look at the impact this would have on the company's debt to equity ratio and its return on assets ratio using a ratio financial statement calculation taken from Wal-Mart's annual report for the fiscal year ending January 31, 2004, shown below.

| | (\$ in millions) |
|----------------------------|------------------|
| Total assets | \$106,912 |
| Total liabilities | \$1,289 |
| Total shareholders' equity | 43,623 |
| Net income | 9,054 |

The debt to equity and return on assets ratios are calculated in Graphic 5-18 without considering the capitalization of operating leases and then again after adding \$4,484 million to both total assets and total liabilities. In the calculation of return on assets, we use only the average total assets rather than the average total assets for the year. Also, we assume no income increase.

| | Without Capitalization | With Capitalization |
|----------------------|----------------------------|---|
| Debt to equity ratio | \$1,289 / \$43,623 = 2.9% | \$1,289 + \$4,484 / \$43,623 + \$4,484 = 5.1% |
| Return on assets | \$9,054 / \$106,912 = 8.5% | \$9,054 / \$106,912 + \$4,484 = 8.3% |

10. The increase in assets is calculated by multiplying the debt equivalent of the operating lease commitments by the PV factor of 10% and then adding the result to the total assets of \$106,912 million. The increase in liabilities is calculated by multiplying the debt equivalent of the operating lease commitments by the PV factor of 10% and then adding the result to the total liabilities of \$1,289 million.

GRAPHIC 5-17

Estimating the Debt Equivalent of Operating Lease Commitments

GRAPHIC 5-18

Ratios with and without Capitalization of Operating Leases

The debt-to-equity ratio rises from 40 to 1.51 and the return on assets ratio declines from 8.63 to 4.39.

STATEMENT OF CASH FLOW IMPACT

Operating leases are not reported on a statement of cash flows.

Operating Leases. Remember, lease payments for operating leases represent rent expense to the lessee, revenue for the lessor. These amounts are included in net income, so both the lessee and lessor report cash payments for operating leases in a statement of cash flows as cash flows from operating activities.

The interest portion of a capital lease payment is a cash flow from operating activities and the principal portion is a cash flow from financing activities.

Capital Leases and Direct Financing Leases. You've learned in this chapter that capital leases are agreements that we identify as being formulated outwardly as leases, but which are in reality installment purchases, so we account for them as such. Each rental payment (except the first if paid at inception) includes both an amount that represents interest and an amount that represents a reduction of principal. In a statement of cash flows, then, the lessee reports the interest portion as a cash outflow from operating activities and the principal portion as a cash outflow from financing activities. On the other side of the balance sheet, the lessor in a direct financing lease reports the interest portion as a cash inflow from operating activities and the principal portion as a cash inflow from investing activities. Both a lessee and lessor report the lease at its inception as a noncash investing/financing activity.

Cash receipts from a sale-type lease are reported as cash inflows from operating activities.

Sale-Type Lease. A sale-type lease differs from a direct-financing lease for the lessee in that we assume the lessor is actually selling its product. Consequently with reporting sale-type products under installment sales agreements rather than lease agreements, the lessor reports cash receipts from a sale-type lease as cash inflows from operating activities.

CONCEPT REVIEW EXERCISE

VARIOUS LEASE ACCOUNTING ISSUES

(This is an extension of the previous Concept Review Exercise.)

United Cellular Systems leased a satellite transmission device from Satellite Technology Corporation on January 1, 2007. Satellite Technology paid \$500,000 for the transmission device. Its retail value is \$653,68.

Terms of the Lease Agreement and Related Information:

| | |
|--|--|
| Lease term | 3 years (6 semiannual periods) |
| Semiannual rental payments | \$123,000—beginning of each period |
| Economic life of asset | 4 years |
| Implicit interest rate | 12% |
| Also lessee's incremental borrowing rate | |
| Unguaranteed residual value | \$40,000 |
| Regulatory fees paid by lessor | \$3,000/twice each year (included in rentals) |
| Lessor's initial direct costs | \$4,500 |
| Contingent rental payments | Additional \$4,000 if revenues exceed a specified base |

Required:

1. Prepare an amortization schedule that describes the pattern of interest expense over the lease term for United Cellular Systems.
2. Prepare an amortization schedule that describes the pattern of interest revenue over the lease term for Satellite Technology.
3. Prepare the appropriate entries for both United Cellular Systems and Satellite Technology on January 1 and June 30, 2007.
4. Prepare the appropriate entries for both United Cellular Systems and Satellite Technology on December 31, 2009 (the end of the lease term), assuming the device is returned to the lessor and its actual residual value is \$14,000 on that date.

2. Prepare an amortization schedule that describes the pattern of interest expense over the lease term for United Cellular Systems.

SOLUTION

Calculation of the Present Value of Minimum Lease Payments:

Present value of periodic rental payments excluding executory costs of \$3,000:

$$(\$120,000 \times 5.21236^*) = \$625,483$$

*Present value of an annuity due of \$1, $n = 6$, $i = 6\%$.

Note: The unguaranteed residual value is excluded from minimum lease payments for both the lessee and lessor.

| Date | Payments | Effective Interest
(6% \times Outstanding balance) | Decrease in
Balance | Outstanding
Balance |
|---------|----------|---|------------------------|------------------------|
| 1/1/07 | | | | \$625,483 |
| 1/1/07 | 120,000 | | 120,000 | 505,483 |
| 6/30/07 | 120,000 | .06 (505,483) = 30,329 | 89,671 | 415,812 |
| 1/1/08 | 120,000 | .06 (415,812) = 24,949 | 95,051 | 320,761 |
| 6/30/08 | 120,000 | .06 (320,761) = 19,246 | 100,754 | 220,007 |
| 1/1/09 | 120,000 | .06 (220,007) = 13,200 | 106,800 | 113,207 |
| 6/30/09 | 120,000 | .06 (113,207) = 6,793* | 113,207 | 0 |
| | 720,000 | 64,517 | \$625,483 | |

*Adjusted for rounding of other numbers in the schedule.

3. Prepare an amortization schedule that describes the pattern of interest revenue over the lease term for Satellite Technology.

Calculation of the Lessor's Net Investment:

Present value of periodic rental payments excluding

executory costs of \$3,000 ($\$120,000 \times 5.21236^*$)

\$625,483

Plus: Present value of the unguaranteed residual value ($\$40,000 \times .70496^*$)

28,198

Lessor's net investment in lease

\$653,681*Present value of an annuity due of \$1, $n = 6$, $i = 6\%$.

*See Table 15-2, p. 740.

Note: The unguaranteed residual value is excluded from minimum lease payments, but is part of the lessor's gross and net investment in the lease.

| Date | Payments | Effective Interest
(6% \times Outstanding balance) | Decrease in
Balance | Outstanding
Balance |
|---------|----------|---|------------------------|------------------------|
| 1/1/07 | | | | \$653,681 |
| 1/1/07 | 120,000 | | 120,000 | 533,681 |
| 6/30/07 | 120,000 | .06 (533,681) = 32,021 | 87,979 | 445,702 |
| 1/1/08 | 120,000 | .06 (445,702) = 26,742 | 93,258 | 352,444 |
| 6/30/08 | 120,000 | .06 (352,444) = 21,147 | 98,853 | 253,591 |
| 1/1/09 | 120,000 | .06 (253,591) = 15,215 | 104,785 | 148,806 |
| 6/30/09 | 120,000 | .06 (148,806) = 8,928 | 111,072 | 37,734 |
| 2/3/10 | 40,000 | .06 (37,734) = 2,264* | 37,734 | 0 |
| | 760,000 | 106,314 | \$653,681 | |

*Adjusted for rounding of other numbers in the schedule.

3. Prepare the appropriate entries for both United Cellular Systems and Satellite Technology on January 1 and June 30, 2007.

January 1, 2007

United Cellular Systems (Lessee)

| | | |
|--|---------|---------|
| Lease equipment (calculated above) | 625,483 | |
| Lease payable (calculated above) | | 625,483 |
| Lease payable (payment less executory costs) | 120,000 | |
| Prepaid lease expense (executory costs) | 3,000 | |
| Cash (rental payment) | | 123,000 |



Satellite Technology (Lessor)

| | | |
|--|---------|---------|
| lease receivable $[(\$120,000 \times .61) + \$40,000 \times .1]$ | 41,100 | |
| Cost of goods sold $(\$550,000 - \$40,000) \times .75498$ | 411,100 | |
| Sales revenue (present value of minimum lease payments) | | 411,100 |
| Unearned interest revenue $(\$760,000 - 653,681)$ | | 106,319 |
| Inventory of equipment (lessor's cost) | | |

| | | |
|-----------------------------|-------|--|
| Selling expense | 1,000 | |
| Cash (initial direct costs) | | |

| | | |
|---|-------|-------|
| Cash rental payments | 2,000 | |
| Regulatory fees payable (on cash) | | |
| Lease receivable payment (less regulatory fees) | | 1,000 |

Net cash provided by operating activities
 Net cash provided by operating activities

June 30, 2007

United Cellular Systems (Lessee)

| | | |
|---|--------|--------|
| Interest expense (for 1926 days $\times .120$) | 30,120 | |
| Lease payable difference | 99,670 | |
| Regulatory fees expense (annual fees) | 3,000 | |
| Cash rental payments | | 23,000 |

Satellite Technology (Lessor)

| | | |
|-------------------------|-------|--|
| Interest revenue | 1,000 | |
| Regulatory fees expense | | |
| Lease receivable | | |
| Cash | | |
| Regulatory fees payable | | |
| Lease receivable | | |

4. Prepare the appropriate entries for both United Cellular Systems and Satellite Technology on December 31, 2009 (the end of the lease term), assuming the device is returned to the lessor and its actual residual value is \$14,000 on that date.

December 31, 2009

United Cellular Systems (Lessee)

| | | |
|---|---------|---------|
| Depreciation expense $(\$625,403 \div 3 \text{ years})$ | 208,464 | |
| Accumulated depreciation | | 208,464 |
| Accumulated depreciation account balance | 625,463 | |
| Leased equipment (at year balance) | | 625,463 |

Satellite Technology (Lessor)

| | | |
|--|-------|-------|
| Interest revenue | 1,000 | |
| Regulatory fees expense | | |
| Lease receivable | | |
| Unearned interest revenue (acquired balance) | 2,266 | |
| Interest revenue $(.6\% \times \$377,334 \text{ from schedule})$ | | 2,266 |

PART D**SPECIAL LEASING ARRANGEMENTS****Sale-Leaseback Arrangements****LO10**

In a sale-leaseback transaction, the owner of an asset sells it and immediately leases it to the new owner. Sound strange? Maybe, but this arrangement is common. In a sale-leaseback transaction, two things happen:

1. The seller-lessee receives cash from the sale of the asset.
2. The seller-lessee pays periodic rent payments to the buyer-lessor to retain the use of the asset.

What motivates this kind of arrangement? The two primary reasons are: (1) If the asset had been financed originally with debt and interest at a higher rate, the sale-leaseback transaction can be used to effectively refinance at a lower rate; (2) The more likely reason for a sale-leaseback transaction is to generate cash.

CAPITAL LEASES

Illustration 15-7 demonstrates a sale-leaseback involving a capital lease. The sale and simultaneous leaseback of the warehouses should be viewed as a single borrowing transaction. Even though there appear to be two separate transactions, in substance at the substance of the agreement, Teledyne still retains the use of the warehouses that it had prior to the sale-leaseback. What is different? Teledyne has \$900,000 cash and a noncancelable obligation to make annual payments of \$133,155. In substance, Teledyne simply has borrowed \$900,000 to be repaid over 10 years along with 10% interest. From the perspective of substance over form, we do not immediately recognize the \$300,000 gain on the sale of the warehouses but defer the gain to be recognized over the term of the lease (or the useful life of the asset, if it is expected to transfer outright or by the exercise of a BPO), demonstrated in Illustration 15-7A.

Not every sale-leaseback transaction follows the same accounting concept of substance over form.

Active Dist. Division, Inc. was in need of cash. Its solution: sell its four warehouses (or 200,000 sq. ft.) and lease back the warehouses to itself to then be used to store the warehouses. The warehouses had a carrying value on Teledyne's books of \$600,000 (original cost \$950,000). Other information:

1. The noncancelable lease term is 10 years and requires annual payments of \$133,155 beginning December 31, 2006. The estimated remaining useful life of the warehouses is 10 years.
2. The annual rental payments (present value \$900,000) provides the lessor with a 10% rate of return on the financing arrangement.¹² Teledyne's incremental borrowing rate is 10%.
3. Teledyne depreciates its warehouses on a straight-line basis.

$$\begin{aligned} \text{Annual payment} &= \$900,000 / 10 \text{ years} = \$90,000 \\ \text{Interest} &= \$900,000 \times 10\% = \$90,000 \end{aligned}$$

| December 31, 2006 | | |
|---|---------|---------|
| Cash | 900,000 | |
| Accumulated depreciation (\$950,000 - 600,000) | 350,000 | |
| Warehouses (cost) | | 950,000 |
| | | 300,000 |
| Lease: Warehouses (present value of lease payments) | 900,000 | |
| Lease payable (present value of lease payments) | | 900,000 |
| Lease payable | 133,155 | |
| Gain | | 30,000 |
| December 31, 2007 | | |
| Interest expense (10% × \$900,000) (2 × 5%) | 76,685 | |
| Lease payable difference) | 56,470 | |
| Less: Rental payment | | 33,555 |
| Depreciation expense (\$950,000 ÷ 10 years) | 90,000 | |
| Accumulated depreciation | | 90,000 |
| Gain on sale-leaseback (\$300,000 ÷ 10 years) | 30,000 | |
| Depreciation expense | | 30,000 |

ILLUSTRATION 15-7
Sale-Leaseback

ILLUSTRATION 15-7A
Recording a Sale-Leaseback

The gain on sale-leaseback is deferred and recognized over the lease term as a reduction of depreciation expense.

Since the lease term is equal to the expected useful life of the warehouses (10 years), the transaction must be recorded by the lessee as a capital lease.¹³ There typically is an interdependency between the lease terms and the price at which the asset is sold. The earnings

¹² For simplicity, this is not the present value of lease payments (\$900,000) to 10% (which is the fair value of the warehouses) plus the depreciation on the original cost of the warehouses.

the possibility of an operating lease. Suppose, for instance, that the original useful life of warehouses was 40 years. In that case, the current lease term would occur during the last 15% of an asset's economic life and we would have an operating lease.

LOSSES ON SALE-LEASEBACKS

1. **sale-leaseback** any gain on the sale of the asset is deferred and amortized. However, a real loss on the sale of the property is recognized immediately—not deferred. A real loss exists if the fair value is less than the carrying amount of the asset. On the other hand, if the fair value exceeds the carrying amount, but the asset is sold to the buyer/lessor for less than its carrying amount, an artificial loss is produced that is probably in substance a prepayment and should be deferred and amortized.

Real Estate Leases

Some leases involve land—exclusively or in part. The concepts we discussed in the chapter all relate to real estate leases. But the fact that land has an unlimited life causes us to modify how we account for some leases involving real estate.

LEASES OF LAND ONLY

Because the useful life of land is indefinite, the risks and rewards of ownership cannot be transferred from the lessor to the lessee unless title to the land is expected to transfer to the lessee either by the expected exercise of a bargain purchase option (criterion 1 or criterion 2). Since the useful life is indefinite, the third and fourth criteria are not applicable automatically, because the leased asset is land; depreciation is inappropriate.

Only the first title transfers; and second

LEASES OF LAND AND BUILDING

When the leased property includes both land and a building and the lease transfers ownership or is expected to by exercise of a BPO, the lessee should record each leased asset separately. The present value of the minimum lease payments is allocated between the leased land and leased building accounts on the basis of their relative market values.

When neither of the first two criteria is met, the question arises as to whether the third and fourth criteria apply. Because they logically should apply to the building (because its life is finite) but not to the land (because its life is unlimited), the profession employs an arbitrary measure. If the fair value of the land is less than 25% of the combined fair value, it is treated as land and both the lessee and the lessor treat the land and building as a single unit. The single leased asset is depreciated as if land were not involved. If the fair value of the land is 25% or more of the combined fair value, both the lessee and the lessor treat the land and building as two separate leases. Thus, the land lease is an operating lease, and the building lease is classified and accounted for in the manner described in the chapter.

When (a) the leased property includes both

number of the first two

LEASES OF ONLY PART OF A BUILDING

Most of the most common of leases involve leasing only part of a building. For instance, businesses frequently lease space in an office building or individual stores in a shopping mall. Account difficulties arise when applying lease accounting procedures in these situations. What is the cost of the third shop from the entrance in a \$14 million mall? What is the fair value of such flow office suite in a 40-floor office complex? Despite practical difficulties, usual lease accounting treatment applies. It may, however, be necessary to employ real estate appraisals and replacement cost information to arrive at reasonable estimates of cost or fair value.

Leveraged Leases

In a leveraged lease, a third-party, long-term creditor provides nonrecourse financing for a lease agreement between a lessor and lessee. The term *leveraged* refers to the fact that the lessor acquires title to the asset after borrowing a large part of the investment.

From the lessee's perspective, accounting for a leveraged lease is not distinguishable from accounting for a nonleveraged lease. Accounting for leveraged leases by the lessor is similar

A lease is recorded as a liability on the balance sheet if the lessee is obligated to make payments over the lease term that exceed the fair value of the leased asset at the end of the lease term. In such cases, the lessee is effectively financing the asset, and the lease is recorded as a liability on the balance sheet.

to that for nonleveraged leases. A lessor records its investment (receivable) net of the loan course debt. The lessor's liability to the lender should be offset against its lease receivable from the lessee because its role is in substance that of a mortgage broker. That is, the lessor earns income by serving as an agent for a firm wishing to acquire property and a lender seeking an investment. The lessor borrows enough cash from the lender to acquire the property, which is in turn leased to the lessee under a capital lease. Payments from the lessee are applied to the note held by the lender. The note may be assumed by the lessee without recourse such that the lessor is absolved of responsibility for its payment. In order to qualify for its variable treatment under the tax code, the lessor must maintain at least a minimum percentage of equity position in the asset. Also, the lessor should report income from the lease only in those years when the receivable exceeds the liability.



FINANCIAL REPORTING CASE SOLUTION

1. How would HG's revenues "take a hit" as a result of more customers leasing than buying mainframes? (p. 727) When HG leases machines under operating leases, it reports revenue as it collects "rent" over the lease term. When HG sells machines, on the other hand, it recognizes revenue "up front" in the year of sales. Actually, total revenues are not necessarily less with a lease, but are spread out over the several years of the lease term. This delays the recognition of revenues, creating the "hit" in the reporting periods in which a shift to leasing occurs.
2. Under what kind of leasing arrangements would the "hit" not occur? (p. 726) The hit will not occur when HG leases its machines under sales-type leases. In those cases, despite the fact that the contract specifies a lease, in effect HG actually sells its machines under the arrangement. Consequently, HG will recognize sales revenue (and cost of goods sold) at the inception of the lease. The amount recognized is roughly the same as if customers actually buy the machines. As a result, the income statement will not receive the hit created by the substitution of operating leases for outright sales. ■

THE BOTTOM LINE

1. Leasing is used as a means of off-balance-sheet financing and to achieve operational and tax objectives.
2. In keeping with the concept of substance over form, a lease is accounted for as either a rental agreement or a purchase/sale accompanied by debt financing.
3. A lessee should classify a lease transaction as a capital lease if it is noncancelable and one or more of four classification criteria are met. Otherwise, it is an operating lease. A lessor records a lease as a direct financing lease or a sales-type lease only if two criteria relating to revenue realization are met in addition to one of the four classification criteria.
4. In an operating lease a sale is not recorded by the lessor; a purchase is not recorded by the lessee. Instead, the periodic rental payments are accounted for merely as rent expense by the lessor, rent expense by the lessee.
5. In a capital lease, the lessee records a leased asset at the present value of the minimum lease payments. A nonoperating lease is recorded by the lessor as a sales-type lease or a direct financing lease, depending on whether the lease provides the lessor a dealer's profit.
6. A sales-type lease requires recording sales revenue and cost of goods sold by the lessor at the inception of the lease. All other entries are the same as in a direct financing lease.
7. A lessee-guaranteed residual value is included as a component of minimum lease payments for both the lessor and the lessee. An ungauranteed residual value is not included as part of the lessor's gross investment in the lease.
8. A bargain purchase option is included as a component of minimum lease payments for both the lessor and the lessee. The lease term effectively ends when the BPO is exercised.

4. Executory costs (maintenance, insurance, taxes, and any other costs usually associated with ownership) are expenses of the lessee. Any costs incurred by the lessor that are associated directly with originating a lease and are essential to acquire that lease are called *initial direct costs* and are expensed in accordance with the matching principle. To find the present value of minimum lease payments to capitalize as an asset and liability, the lessee usually uses a discount rate equal to the lower of the rate implicit in the lease agreement and its own incremental borrowing rate. Contingent rentals are *not* included in the minimum lease payments because they are not determinable at the inception of the lease.
5. A gain on the sale of an asset in a sale leaseback arrangement is deferred and amortized over the lease term (or useful life if title is expected to transfer to the lessee). The lease portion of the transaction is evaluated and accounted for like any lease. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 15-1 The basic concept of “substance over form” influences lease accounting. Explain.
- Q 15-2 How is interest determined in a nonoperating lease transaction? How does the approach compare to other forms of debt financing available to the lessee?
- Q 15-3 How are leases and installment sales the same? How do they differ?
- Q 15-4 A lessee should classify a lease transaction as a capital lease if it is noncancelable and one or more of four classification criteria are met. Otherwise, it is an operating lease. What are these criteria?
- Q 15-5 What is a bargain purchase option? How does it differ from other purchase options?
- Q 15-6 Lukawitz Industries leases equipment from Somnatic Corporation for a four-year period, at which time possession of the equipment will revert to the lessor. The equipment cost Somnatic \$3 million and has an expected useful life of six years. Its normal sales price is \$5.6 million. The present value of the minimum lease payments for both the lessor and lessee is \$5.2 million. The first payment was made at the inception of the lease. Collectibility of the remaining lease payments is reasonably assured, and Lukawitz has no material cost uncertainties. How should the lease be classified as by Lukawitz Industries (the lessee) and by Somnatic Corporation (the lessor)? Why?
- Q 15-7 Can the present value of minimum lease payments differ between the lessor and lessee? If so, how?
- Q 15-8 Compare the way a bargain purchase option and a residual value are treated by the lessee when determining minimum lease payments.
- Q 15-9 What are executory costs? How are they accounted for by the lessee in a capital lease when paid by the lessee? When paid by the lessor? Explain.
- Q 15-10 The discount rate influences virtually every amount reported in connection with a lease by both the lessor and the lessee. What is the lessor’s discount rate when determining the present value of minimum lease payments? What is the lessee’s discount rate?
- Q 15-11 A lease might specify that rental payments may be increased (or decreased) at some future time during the lease term depending on whether a certain specified event occurs, such as a renter or provider needing more (or less) space. Under what circumstances would such rentals be included or excluded from minimum lease payments? If excluded, how are they recognized in income determination?
- Q 15-12 The term “initial direct costs” often is discussed. What are initial direct costs?
- Q 15-13 When are initial direct costs recognizable in computing lease? In a direct financing lease? In a sales-type lease? Why?
- Q 15-14 In a sale leaseback transaction, the owner of an asset sells it and immediately leases it back from the new owner. How does transaction should be viewed as a single borrowing transaction? Why?
- Q 15-15 Explain how the general classification criteria are applied to leases that involve land.
- Q 15-16 What are the guidelines for determining when a major portion of fair value is transferred in a lease?
- Q 15-17 How does a leveraged lease differ from a nonleveraged lease?

BRIEF EXERCISES

BE 15-1 Operating lease

1. (A)

At the beginning of its fiscal year, Lukawitz Inc. leased office space to LIT Corporation under a three-year operating lease agreement. The contract calls for quarterly rent payments of \$25,000 each. The office building was acquired by Lukawitz at a cost of \$2 million and was expected to have a useful life of 25 years with no residual value. What will be the effect of the lease on LIT’s earnings for the first year beginning October 1?

BE 15-2
Operating lease

• Q4

BE 15-3
Operating lease;
advance payment

• Q4

BE 15-4
Lease classification

• Q3, Q5

BE 15-5
Lease classification

• Q3, Q5

BE 15-6
Net investment in
leases

• Q5

BE 15-7
Nonoperating lease;
calculate interest

• Q5

BE 15-8
Capital lease; balance
sheet effects

• Q5

BE 15-9
Capital lease; lessee
income statement
effects

• Q5

BE 15-10
Sales-type lease; lessor
income statement
effects

• Q6

BE 15-11
Sales-type lease; lessor
calculate lease
payments

• Q6

BE 15-12
Lessor; residual
value; direct financing
lease

• Q3 through Q7

In the situation described in the previous brief exercise, what will be the effect of the lease on Waco's earnings for the first year? (Ignore taxes.)

Waco Products leased office space under a 10-year operating lease agreement. The lease specified monthly rent payments of \$3,000 each, beginning at the inception of the lease. In addition to the first payment, Waco also paid a \$100,000 advance payment at the lease's inception. What will be the effect of the lease on Waco's earnings for the first year? (Ignore taxes.)

Cornish Co. leased equipment to Athens Corporation for an eight-year period, at which time possession of the leased asset will revert back to Cornish. The equipment cost Cornish \$16 million and has an estimated useful life of 12 years. Its normal sales price is \$22.4 million. The present value of the minimum lease payments for both the lessor and lessee is \$20 million. The first payment was made at the inception of the lease. Collectibility of the remaining lease payments is reasonably assured, and Cornish has no material uncertainties. How should Athens classify this lease? Why?

In the situation described in BE 15-4, how should Cornish classify this lease? Why?

The 2004 annual report of the Home Depot Inc. disclosed reported minimum lease payments receivable of \$19,312,000 and a net investment in direct financing leases of \$7,161,000. What accounts for the difference between these two amounts? Explain.

A lease agreement calls for quarterly lease payments of \$5,576 over a 10-year lease term, with the first payment in July 1 of the lease's inception. The interest rate is 8%. Both the fair value and the cost of the asset are \$50,000. What would be the amount of interest expense the lessee would record in conjunction with the second quarterly payment at October 1? What would be the amount of interest revenue the lessor would record in conjunction with the second quarterly payment at October 1?

A lease agreement that qualifies as a capital lease calls for annual lease payments of \$20,260 over a 10-year lease term, with the first payment at January 1 of the lease's inception. The interest rate is 5%. If there is no sale year in the calendar year, what would be the amount of the lease liability that the lessee would report on its balance sheet at the end of the first year? What would be the interest payable?

In the situation described in BE 15-8, what would be the present amounts related to the lease that the lessor would report in its income statement for the year ended December 31?

In the situation described in BE 15-8, assume the asset being leased cost the lessor \$125,000 to make. Determine the price at which the lessor is "selling" the asset (present value of the lease payments). What would be the net amounts related to the lease that the lessor would report in its income statement for the year ended December 31?

Manning Imports is contemplating an agreement to lease equipment to a customer for five years. Manning normally sells the asset for a cash price of \$100,000. Assuming that 8% is a reasonable rate of interest, what must be the amount of quarterly lease payments (beginning at the inception of the lease) in order for Manning to recover its normal selling price as well as be compensated for financing the asset over the lease term?

On January 1, James Industries leased equipment to a customer for a four-year period, at which time possession of the leased asset will revert back to James. The equipment cost James \$700,000 and has an expected useful life of six years. Its normal sales price is \$700,000. The residual value after four years guaranteed by the lessee is \$100,000. Lease payments are due on December 31 of each year, beginning with the first payment at the end of the first year. Collectibility of the remaining lease payments is reasonably certain, and there are no material cost uncertainties. The interest rate is 5%. Calculate the amount of the net investment in the lease.

4. **Lease classification**
 For each purchase, indicate whether the lease is a lease or a purchase.

• 105 Dec 108

ABC Leasing acquires equipment and leases it to customers under long-term direct financing leases. The lease terms are as follows: (a) 5% annual rate. ABC leased a machine it purchased for \$100,000 under an arrangement that specifies annual payments beginning at the inception of the lease for 5 years. The lessee had the option to purchase the machine at the end of the lease term for \$10,000 when it was expected to have a residual value of \$160,000. Calculate the amount of the annual lease payments.

EXERCISES

For alternative exercises and problems are available on the text website: www.mhhe.com/asyap10e

4. **Leasing lease**

• 10

On January 1, 2006, Nash Accounting Services, Inc., a computer software training firm, leased several computers from Computer World Corporation under a two-year operating lease agreement. The contract calls for four equal payments of \$10,000 each, payable semiannually on June 30 and December 31 each year. The computers were acquired by Computer World at a cost of \$40,000 and were expected to have a useful life of 4 years with no residual value.

Required:

Prepare the appropriate entries for both (a) the lessee and (b) the lessor from the inception of the lease through the end of 2006. (Use straight-line depreciation.)

5. **Leasing lease**
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 • 10
 • 10
 • 10

On January 1, 2006, Winn-Hess Transfer leased office space under a three-year operating lease agreement. The arrangement specified three annual rent payments of \$80,000 each, beginning January 1, 2006, the inception of the lease, and at each January 1 through 2008. Winn also paid a \$960,000 advance payment at the inception of the lease in addition to the first \$80,000 rent payment. With permission of the lessor, Winn made structural modifications to the building before occupying the space at a cost of \$180,000. The useful life of the building and the structural modifications were estimated to be 30 years with no residual value.

Required:

Prepare the appropriate entries for Winn-Hess Transfer from the inception of the lease through the end of 2006. Winn's fiscal year is the calendar year. Winn uses straight-line depreciation.

6. **Leasing lease**
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 • 10
 • 10
 • 10

The following questions dealing with various topics in this chapter are adapted from previous CPA examinations. Determine the response that best completes the statement or question.

On January 2, 2005, Rai Co. leased land and building from an unrelated lessor for a 10-year term. The lease has a renewal option for an additional 10 years, but Rai has not reached a decision with regard to the renewal option. In early January 2005, Rai completed the following improvements to the property:

| Description | Estimated Life | Cost |
|--------------|----------------|----------|
| Sales office | 10 years | \$37,500 |
| Warehouse | 25 years | \$75,000 |
| Parking lot | 15 years | \$18,000 |

Assuming the lease is a direct financing lease, the following should be:

- a. 57,500
 b. 37,500
 c. 75,000
 d. 18,000

As an inducement to enter a lease, Rai Co., a lessor, granted Zep, Inc., a lessee, 2 months of free rent under a five-year operating lease. The lease was effective on January 1, 2006, and provided for monthly rental payments to begin January 1, 2007. Zep made the first annual payment on December 31, 2006. In its 2006 income statement, Rai should report rental revenue in its amount equal to:

- a. Zero
 b. Cash received during 2006
 c. One-fourth of the cash each of the five years over the life of the lease
 d. One-fifth of the total cash to be received over the life of the lease

Note: Even uses a, and b are three different situations.

Manufacturers Southern leased high-tech electronic equipment from Edison Leasing on January 1, 2006. Edison purchased the equipment from International Machines at a cost of \$112,000.

• 10
 • 10
 • 10
 • 10

• 10

Related information:

| | |
|--|-----------------------------------|
| Lease term | 2 years (8 quarterly periods) |
| Quarterly rental payments | \$ 5,000—beginning of each period |
| Economic life of asset | 2 years |
| Fair value of asset | \$12,000 |
| Implicit interest rate | 8% |
| (Also lessee's incremental borrowing rate) | |

Required:

Prepare a lease amortization schedule and appropriate entries for Manufacturer Southern on the first of January 2007. Assume that the equipment is depreciated on a straight-line basis.

E 13-9

Direct financing lease, lessor

LO5

Related information:

| | |
|--|-----------------------------------|
| Lease term | 2 years (8 quarterly periods) |
| Quarterly rental payments | \$15,000—beginning of each period |
| Economic life of asset | 2 years |
| Fair value of asset | \$112,000 |
| Implicit interest rate | 8% |
| (Also lessee's incremental borrowing rate) | |

Required:

Prepare a lease amortization schedule and appropriate entries for Edison Leasing from the inception of the lease through January 1, 2007. Edison's fiscal year ends December 31.

E 13-10

Sales-type lease, lessor

LO5

Manufacturer Southern leased high-tech electronic equipment from International Machines on January 1, 2006. International Machines manufactured the equipment at a cost of \$85,000.

Related information:

| | |
|--|-----------------------------------|
| Lease term | 2 years (8 quarterly periods) |
| Quarterly rental payments | \$15,000—beginning of each period |
| Economic life of asset | 2 years |
| Fair value of asset | \$112,000 |
| Implicit interest rate | 8% |
| (Also lessee's incremental borrowing rate) | |

Required:

Show how International Machines determined the \$15,000 quarterly rental payments.

- Prepare appropriate entries for International Machines to record the lease at its inception, January 1, 2006, and the second rental payment on April 1, 2006.

E 13-11

Capital lease

LO5

American Froid Services, Inc., leased a packaging machine from Barton and Barton Corporation. Barton and Barton completed construction of the machine on January 1, 2006. The lease agreement for the \$4 million (fair market value) machine specified four equal payments at the end of each year. The useful life of the machine was expected to be four years with no residual value. Barton and Barton's implicit interest rate is 10% (also American Froid Services' incremental borrowing rate).

Required:

- Prepare the journal entry for American Froid Services at the inception of the lease on January 1, 2006.
- Prepare an amortization schedule for the four-year term of the lease.
- Prepare the journal entry for the first lease payment on December 31, 2006.
- Prepare the journal entry for the third lease payment on December 31, 2008.

(Note: You may wish to compare your solution to this exercise with that of Exercise 13-10, which describes a parallel situation in which the packaging machine was acquired with an installment sale.)

(Note: Exercises 8, 9, and 10 are three variations of the same situation.)

E 13-12

Capital lease, lessee, balance sheet and income statement effects

LO5

On June 30, 2006, Georgia-Atlantic, Inc., leased a warehouse facility from Kwik Leasing Corporation. The lease agreement calls for Georgia-Atlantic to make semiannual lease payments of \$562,907 over a five-year lease term, payable each June 30 and December 31, with the first payment of June 30, 2006. Georgia-Atlantic's incremental borrowing rate is 10%, the same rate Kwik uses to calculate lease payments. Depreciation is recorded on a straight-line basis at the end of each fiscal year. The fair value of the warehouse is \$3 million.

Required:

- Determine the present value of the lease payments at June 30, 2006 (use the nearest \$100,000). Georgia-Atlantic uses to record the leased asset and lease liability.

2. What pretax amounts related to the lease would Georgia-Atlantic report in its balance sheet at December 31, 2006?
3. What pretax amounts related to the lease would Georgia-Atlantic report in its income statement for the year ended December 31, 2006?

In June 30, 2006, Georgia-Atlantic, Inc. leased a warehouse facility from K' Landing Corporation. The lease agreement calls for Georgia-Atlantic to make semiannual lease payments of \$562,907 over a three-year lease term payable each June 30 and December 31, with the first payments at June 30, 2006. Georgia-Atlantic's incremental borrowing rate is 10%, the same rate K' used to calculate lease payment amounts. K' purchased the warehouse from Builders, Inc. at a cost of \$3 million.

Required:

1. What pretax amounts related to the lease would K' report in its balance sheet at December 31, 2006?
2. What pretax amounts related to the lease would K' report in its income statement for the year ended December 31, 2006?

On June 30, 2006, Georgia-Atlantic, Inc. leased a warehouse facility from Builders, Inc. The lease agreement calls for Georgia-Atlantic to make semiannual lease payments of \$562,907 over a three-year lease term, payable each June 30 and December 31, with the first payments at June 30, 2006. Georgia-Atlantic's incremental borrowing rate is 10%, the same rate Builders used to calculate lease payment amounts. Builders constructed the warehouse at a cost of \$2.5 million.

Required:

1. Determine the price at which Builders is "selling" the warehouse (present value of the lease payments) at June 30, 2006, the month 2006.
2. What pretax amounts related to the lease would Builders report in its balance sheet at December 31, 2006?
3. What pretax amounts related to the lease would Builders report in its income statement for the year ended December 31, 2006?

Each of the three independent situations below describes a nonoperating lease in which annual rental payments are payable at the beginning of each year. The lessee is aware of the lessor's implicit rate of return.

| | Situation | | |
|-------------------------------------|-----------|-----------|-----------|
| | 1 | 2 | 3 |
| Lease term (years) | 10 | 20 | 4 |
| Lessor's rate of return | 11% | 9% | 12% |
| Lessee's incremental borrowing rate | 12% | 7% | 11% |
| Fair market value of leased asset | \$600,000 | \$950,000 | \$165,000 |

Required:

For each situation, determine:

- a. The amount of the annual rental payments as calculated by the lessor.
- b. The amount the lessee would record as a leased asset and a lease liability.

Note: This is a variation of the previous exercise modified to assume rental payments are at the end of each period.

Each of the three independent situations below describes a nonoperating lease in which annual rental payments are payable at the end of each year. The lessee is aware of the lessor's implicit rate of return.

| | Situation | | |
|-------------------------------------|-----------|-----------|-----------|
| | 1 | 2 | 3 |
| Lease term (years) | 10 | 20 | 4 |
| Lessor's rate of return | 11% | 9% | 12% |
| Lessee's incremental borrowing rate | 12% | 7% | 11% |
| Fair market value of leased asset | \$600,000 | \$950,000 | \$165,000 |

Required:

For each situation, determine:

- a. The amount of the annual rental payments as calculated by the lessor.
- b. The amount the lessee would record as a leased asset and a lease liability.

Each of the four independent situations below describes a nonoperating lease in which annual rental payments are payable at the beginning of each year. Determine the annual rental payments for each.

E 15-4

Lease concepts: direct financing leases, guaranteed and unguaranteed residual value

• 10% through 10%

| | Situation | | | |
|-----------------------------------|-----------|-----------|----------|-----------|
| | 1 | 2 | 3 | 4 |
| Lease term (years) | 3 | 7 | 5 | 8 |
| Lease rate of return | 9% | 11% | 9% | 12% |
| Fair market value of leased asset | 100 | \$250,000 | \$25,000 | \$465,000 |
| Lease term of leased asset | 100 | \$250,000 | \$45,000 | \$465,000 |
| Residual value | | | | |
| Guaranteed by lessee | 0 | \$ 50,000 | 0 | \$ 30,000 |
| Unguaranteed | | | \$ 7,000 | \$ 15,000 |

Each of the four independent situations below involves a direct financing lease in which annual payments of \$30,000 are payable at the beginning of each year, such as a capital lease for the lessee. Determine the appropriate classification for each lease.

A. The lessor:

- Minimum lease payments, net of discounts in the lease
- Net investment in the lease
- Unearned interest revenue

B. The lessee:

- Minimum lease payments
- Leased asset
- Lease liability

| | Situation | | | |
|---------------------------------------|-----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 |
| Lease term (years) | 7 | 7 | 8 | 9 |
| Lease rate and lessor's discount rate | 9% | 11% | 10% | 12% |
| Residual value | | | | |
| Guaranteed by lessee | 0 | \$80,000 | 0 | \$40,000 |
| Unguaranteed | 0 | 0 | \$80,000 | \$40,000 |

E 15-5

Calculation of annual lease payments, BPO

• 100 through 100

Each of the three independent situations below represents the acquisition of the leased asset by the lessor. Determine the appropriate classification for each lease in which annual payments of \$30,000 are payable at the beginning of each year, such as a capital lease for the lessee. Determine the appropriate classification for each lease.

| | Situation | | |
|-----------------------------------|-----------|-----------|-----------|
| | 1 | 2 | 3 |
| Lease term (years) | 5 | 12 | 4 |
| Lease rate of return | 7% | 11% | 9% |
| Fair market value of leased asset | \$60,000 | \$420,000 | \$185,000 |
| Lease term of leased asset | \$60,000 | \$420,000 | \$ 45,000 |
| Bargain purchase option | | | |
| Option price | \$10,000 | \$ 50,000 | \$ 22,000 |
| Exerciseable at end of year | 5 | 5 | 3 |

E 15-6

Capital lease, bargain purchase option: lessee

• 100 through 100

Federated Fabrications leased a tooling machine on December 31, 2005, for a three-year period. The agreement specified annual payments of \$36,000 beginning with the first payment at the inception of the lease, and each December 31 through 2007. The company had the option to purchase the machine on December 31, 2008, for \$45,000 when its fair value was expected to be \$60,000. The machine's estimated useful life was 10 years with no salvage value. Federated depreciates assets by the straight-line method. Federated was aware that the lessor's implicit rate of return was 12% which was less than Federated's cost of funds rate.

Required:

- Calculate the amount Federated should record as a leased asset and lease liability for this operation.
- Prepare an amortization schedule that details the pattern of interest expense as Federated makes lease payments.
- Prepare the appropriate journal entry for Federated from the inception of the lease through the end of the lease term.

E 15-7

Bargain purchase option: lessor direct financing lease

• 100 through 100

Federated Fabrications leased a tooling machine on December 31, 2005, for a three-year period. The agreement specified annual payments of \$36,000 beginning with the first payment at the inception of the lease, and each December 31 through 2007. The company had the option to purchase the machine on December 31, 2008, for \$45,000 when its fair value was expected to be \$60,000. The machine's estimated useful life was 10 years with no salvage value. Federated depreciates assets by the straight-line method. Federated was aware that the lessor's implicit rate of return was 12% which was less than Federated's cost of funds rate.

The company's cost of funds rate was 10%. Federated's implicit rate of return was 12%. The company's cost of funds rate was 10%. Federated's implicit rate of return was 12%.

her 31, 2005, the inception of the lease, and each December 31 through 2007 (three-year lease term). The publisher had the option to purchase the machine on December 30, 2006, for \$12,000 which it was expected to have a residual value of \$5,000.

Required:

1. Show how Universal calculated the \$8,400 annual rental payments for this direct financing lease.
2. Prepare an amortization schedule and describe the pattern of interest revenue for Universal Lending over the lease term.
3. Prepare the appropriate entries for Universal Lending from the inception of the lease through the end of the lease term.

On December 31, 2005, NRC Credit Corporation leased equipment to Beard Services under a direct financing lease designed to earn NRC a 12% rate of return for providing long-term financing. The lease agreement specified:

- a. 10 annual payments of \$55,000 (including executory costs) beginning December 31, 2005, the inception of the lease.
- b. The estimated useful life of the leased equipment is 10 years with no residual value. Its cost to NRC was \$300,000.
- c. The lease qualifies as a capital lease to Beard.
- d. A 3-year service agreement with Quality Maintenance Company was negotiated to provide maintenance of the equipment as required. Payments of \$3,000 per year are specified, beginning December 31, 2005. NRC was to pay this executory cost as required, but lease payments reflect this expenditure.
- e. A partial amortization schedule appropriate for both the lessee and lessor, follows:

| Dec. 31 | Payments | Effective Interest
2% (Outstanding balance) | Decrease in
Balance | Outstanding
Balance |
|---------|----------|--|------------------------|------------------------|
| 2005 | \$50,000 | | \$50,000 | \$16,412 |
| 2006 | \$50,000 | 12 (266,412) = 31,969 | 18,031 | 248,381 |
| 2007 | \$50,000 | 12 (248,381) = 29,806 | 20,194 | 228,187 |

Required:

Prepare the appropriate entries for both the lessee and lessor to record:

1. The lease at its inception.
2. The second lease payment and depreciation (straight line) on December 31, 2006.

Refer to the lease agreement described in the previous exercise. Assume the contract specified that NRC, the lessor, was to pay not only the \$5,000 maintenance fee, but also insurance of \$700 per year, and was to receive a \$250 management fee for facilitating service and paying executory costs. The lessee's rental payments were increased to include an amount sufficient to reimburse executory costs plus NRC's fee.

Required:

Prepare the appropriate entries for both the lessee and lessor to record the second lease payment, executory costs, and depreciation (straight line) on December 31, 2006.

The following questions dealing with various topics in this chapter are adapted from previous CPA exam questions. Determine the response that best completes the statements or questions.

1. On December 31, 2005, Roe Co. leases a machine from Coit for a five-year period. Equal annual payments under the lease are \$15,000 (including \$5,000 annual executory costs) and are due on December 31 of each year. The first payment was made on December 31, 2005, and the second payment was made on December 31, 2006. The five lease payments are discounted at 10% over the lease term. The present value of minimum lease payments at the inception of the lease and before the first annual payment was \$47,000. The lease is appropriately accounted for as a capital lease by Roe on its December 31, 2006, balance sheet. Roe should report a lease liability of:
 - a. \$15,000
 - b. \$30,000
 - c. \$245,000
 - d. \$3,487,000
2. Winn Co. manufactures equipment that is sold or leased. On December 31, 2006, Winn leased equipment to Bart for a five-year period ending December 31, 2011, at which date ownership of the leased asset will be transferred to Bart. Equal payments under the lease are \$20,000 (including \$2,000 executory costs) and are due on December 31 of each year. The first payment was made on December 31, 2006. Collectibility of the remaining lease payments is reasonably assured, and Winn has no material cost uncertainties. The normal sales price of the equipment is \$77,000, and cost is \$60,000. For the year ended December 31, 2006, what amount of income should Winn realize from the lease transaction?

- \$ 7000
- \$ 7500
- \$ 8000
- \$ 8500

At the inception of a capital lease, the fair value of the leased asset should be the lesser of the fair value of the leased asset or the present value of the minimum lease payments, plus any executory costs that are included in the payments if the lessee is obligated to incur those costs as part of the lease.

E 15-2

Lessors' initial direct costs: operating lease

• LOS through LOS 100

Terms of a lease agreement and related facts were:

- The leased asset had a carrying amount of \$ 100,000. Its useful life was six years with no residual value and straight-line depreciation.
- Annual rental payments at the beginning of each year were \$20,000, beginning January 1.
- Lessor's implicit rate when calculating annual rental payments was 10%.
- Costs of negotiating and consummating the completed lease transaction incurred by the lessor were \$ 500.
- Collectibility of the rental payments by the lessor was reasonably predictable and there were no costs to the lessor that were yet to be incurred.

Required:

Prepare the appropriate entries for the lessor to reflect the lease, the initial payment at inception, and the December 31 fiscal year-end under each of the following three independent assumptions:

- The lease term is three years and the lessor paid \$ 100,000 to acquire the asset (operating lease).
- The lease term is six years and the lessor paid \$ 100,000 to acquire the asset (direct financing lease). Assume that adjusting the net investment by initial direct costs reduces the effective rate of interest to 9%.
- The lease term is six years and the lessor paid \$85,000 to acquire the asset (sales-type lease).

E 15-3

Lessors' initial direct costs: operating lease

• LOS 100

The following relate to an operating lease agreement:

- The lease term is 3 years, beginning January 1, 2006.
- The leased asset cost the lessor \$400,000 and had a useful life of eight years with no residual value. The lessor uses straight-line depreciation for its depreciable assets.
- Annual rental payments at the beginning of each year were \$137,000.
- Costs of negotiating and consummating the completed lease transaction incurred by the lessor were \$ 500.

Required:

Prepare the appropriate entries for the lessor from the inception of the lease through the end of the lease term.

E 15-4

Lessors' initial direct costs: direct financing lease

• LOS 100

Terms of a lease agreement and related facts were:

- Costs of negotiating and consummating the completed lease transaction incurred by the lessor were \$ 200.
- The net cash selling price of the leased asset was \$100,000. Its useful life was three years with no residual value.
- Collectibility of the rental payments by the lessor was reasonably predictable and there were no costs to the lessor that were yet to be incurred.
- The lease term is three years and the lessor paid \$400,000 to acquire the asset (direct financing lease).
- Annual rental payments at the beginning of each year were \$150,000.
- Lessor's implicit rate when calculating annual rental payments was 10%.

Required:

- Prepare the appropriate entries for the lessor as received the lease and received payments at the inception of the lease.
- Calculate the effective rate of interest revenue after adjusting the net investment by initial direct costs.
- Record any entry(ies) necessary at December 31, 2006, the fiscal year-end.

E 15-24

Lessors' initial direct costs: sales-type lease

• LOS 100

The lease agreement and related facts indicate the following:

- Leased equipment had a net cash selling price of \$300,000. Its useful life was five years with no residual value.
- Collectibility of the rental payments by the lessor was reasonably predictable and there were no costs to the lessor that were yet to be incurred.
- The lease term is five years and the lessor paid \$265,000 to acquire the equipment (sales-type lease).
- Lessor's implicit rate when calculating annual rental payments was 8%.
- Annual rental payments beginning January 1, 2006, the inception of the lease, were \$60,000.
- Costs of negotiating and consummating the completed lease transaction incurred by the lessor were \$ 500.

Required

Prepare the appropriate entries for the lessor to record:

1. The lease and the initial payment at its inception.
2. Any entry(s) necessary at December 31, 2006, the fiscal year-end.

To raise operating funds, Signal Aviation sold an airplane on January 1, 2006, to a finance company for \$700,000. Signal immediately leased the plane back for a 3-year period, at which time ownership of the airplane will transfer to Signal. The airplane has a fair value of \$800,000. Its cost and its carrying value were \$620,000. Its useful life is estimated to be 9 years. The lease requires Signal to make payments of \$182.77 to the finance company each January 1. Signal depreciates assets on a straight-line basis. The lease has an implicit rate of 12%.

Required

Prepare the appropriate entries for Signal on January 1, 2006, to record the sale-leaseback.

1. December 31, 2006, to record necessary adjustments.

To raise operating funds, National Distribution Center sold its office building to an insurance company on January 1, 2006, for \$800,000 and immediately leased the building back. The operating lease is for the next 2 years of the building's estimated 50-year useful life. The building has a fair value of \$800,000 and a carrying amount of \$250,000 (its original cost was \$1 million). The period payments of \$1,000,000 are payable in the insurance company's bill December 31. The lease has an implicit rate of 9%.

Required

Prepare the appropriate entries for National Distribution Center on:

1. January 1, 2006, to record the sale-leaseback.
2. December 31, 2006, to record necessary adjustments.

The following questions dealing with various topics in this chapter are adopted from previous CPA exam problems. Determine the response that best completes the statements or questions.

1. Able sold its headquarters building to a bank and simultaneously leased back the building. The lease was reported as a capital lease. At the time of sale, the gain should be reported as:

- a. Operating income.
- b. An extraordinary item, net of income tax.
- c. A separate component of shareholders' equity.
- d. An asset valuation adjustment.

2. On January 1, 2006, West Co. leased a building to Brill under an operating lease for 10 years at \$50,000 per year, payable the first day of each lease year. West paid \$15,000 in a real estate broker's fee and a fire. The building is depreciated at \$12,000 per year. For 2006, West's net insurance and property tax expense totaling \$9,000. West's net rental income for 2006 should be:

- a. \$2,000.
- b. \$35,000.
- c. \$36,000.
- d. \$56,000.

3. Listed below are several terms and phrases associated with leases. Pair each item from List A (by letter) with the item from List B that is most appropriately associated with it.

List A

1. Effective rate times balance
2. Realization principle
3. Minimum lease payments plus unguaranteed residual value
4. Present value payments plus lease-guaranteed residual value
5. PV of minimum lease payments plus PV of unguaranteed residual minus total direct costs minus rent revenue
6. Single purchase option
7. Leasehold improvements
8. Cash to satisfy residual value guarantee
9. Capital lease expense
10. Deducted a lessee's computation of total liabilities
11. The transfer of a lease
12. Contingent rentals
13. Rent payments plus lease-guaranteed and third-party-guaranteed residual value

List B

- a. PV of BPO going
- b. Lessor's net investment
- c. Lessor's gross investment
- d. Operating lease
- e. Depreciable assets not in lease
- f. Fair lease price
- g. Depreciation factor (an income split; (disregard only)
- h. Initial expense
- i. Additional lessor conditions
- j. Lessor's minimum lease payments
- k. Purchase price less the fair market value
- l. Sales and lease selling expense
- m. Lessor's minimum lease payments

E 15-29

Real estate lease: land and building

• L01C

On January 1, 2006, Cook Textiles leased a building with two acres of land from Peck Development. The lease is for 10 years at which time Cook has an option to purchase the property for \$100,000. The building has an estimated life of 20 years with a residual value of \$34,000. The lease calls for Cook to assume all costs of ownership and to make annual payments of \$200,000 due at the beginning of each year. On January 1, 2006, the estimate value of the land was \$400,000. Cook uses the straight-line method of depreciation and pays 10% interest on borrowed money. Peck's implicit rate is unknown.

Required:

Prepare Cook Company's journal entries related to the lease for 2006.

E 15-30

Multiple choice; CMA exam, 100%

• C1, CMA, 100%

The following questions identify which type of question is adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. In a CMA designation sponsored by the Institute of Management Accountants, you are asked to provide responses with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

- If it is a direct financing lease, the gross investment less payments receivable is recorded by a lessee as the:
 - Present value of the minimum lease payments minus the unguaranteed residual value assuming it is received at the end of the lease term.
 - Fair value of lessor at the inception of the lease minus the minimum lease payments or the fair value of the leased asset.
 - Difference between the fair value of the leased asset and the unearned interest revenue.
 - Minimum lease payments plus the unguaranteed residual value accruing to the lessor at the end of the lease term.
- Initial direct costs incurred by the lessor under a sales-type lease should be:
 - Deferred and allocated over the economic life of the leased property.
 - Expensed in the period incurred.
 - Deferred and allocated over the term of the lease as a proportion to the recognition of rental revenue.
 - Added to the gross investment in the lease and amortized over the term of the lease as a yield adjustment.
- Howell Corporation, a publicly traded corporation, is the lessee in a leasing agreement with 6 acres of land and a building. If the lease contains a bargain purchase option, Howell should record the land and the building as a(n):
 - Operating lease and capital lease, respectively.
 - Capital lease and operating lease, respectively.
 - Capital lease but recorded as a single unit.
 - Capital lease but separately classified.

PROBLEMS

An alternate exercise and problem set is available on the text website www.mhhe.com/spicard2e.

P 5-1

Operating lease: scheduled rent increases

• L04

On January 1, 2006, Sweetwater Furniture Company leased office space under a 2-year operating agreement. The contract calls for annual rent payments on December 31 of each year. The payment is \$60,000 the first year and increases by \$500 per year. Benefits expected from using the office space in the period of the lease are constant over the lease term.

Required:

Record Sweetwater's rent payment at December 31, 2006 (the fifth rent payment) and December 31, 2007 (the 15th rent payment).

P 5-2

Lease amortization schedule

• L05

On January 1, 2006, National Insulation Corporation (NIC) leased office space under a capital lease. Rent payments are made annually. Title does not transfer to the lessee and there is no bargain purchase option. Portions of the lessee's lease amortization schedule appear below:

| Jan. 1 | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|--------|----------|--------------------|---------------------|---------------------|
| 2006 | | | | \$2,000 |
| 2006 | 20,000 | | 20,000 | 172,000 |
| 2007 | 20,000 | 7,250 | 27,250 | 144,750 |
| 2008 | 20,000 | 6,875 | 36,875 | 107,875 |
| 2009 | 20,000 | 6,438 | 46,438 | 61,438 |
| 2010 | 20,000 | 6,000 | 56,000 | 5,438 |
| 2011 | 20,000 | 5,563 | 65,563 | 0 |

| Jan 1 | Payments | Effective Interest | Decrease in Balance | Outstanding Balance |
|-------|----------|--------------------|---------------------|---------------------|
| 2021 | 20,000 | 7,366 | 12,634 | 61,000 |
| 2024 | 20,000 | 6,101 | 13,899 | 47,107 |
| 2025 | 20,000 | 4,757 | 15,243 | 31,864 |
| 2026 | 20,000 | 3,352 | 16,648 | 0 |

Required

- What is VHC's lease liability at the inception of the lease (after the first payment)?
- What amount would VHC record as a leased asset?
- What is the lease term in years?
- What is the asset's residual value expected at the end of the lease term?
- How much of the residual value is guaranteed by the lessee?
- What is the effective annual interest rate?
- What is the total amount of minimum lease payments?
- What is the total effective quarterly expense recognized over the term of the lease?

Rand Medical manufactures helicopters. It recently used stock which instead of surgery to adjust and repair engines. Physicians Leasing purchased a helicopter from Rand for \$2,000,000 and leased it to Mid-South Urologists Group, Inc. on January 1, 2006.

Lease Description

| | |
|--|------------------------------------|
| Quarterly rental payments | \$170,576 beginning on each period |
| Lease term | 5 years (20 quarters) |
| Net residual value (at EAC) | |
| Expected residual helicopter | 5 years |
| Implicit interest rate and lessee's incremental borrowing rate | 12% |
| Fair value of asset | \$2,000,000 |

Collectibility of the rental payments is reasonably assured, and there are no lease incentives to be incurred.

Required

- How should this lease be classified by Mid-South Urologists Group and by Physicians Leasing?
- Prepare appropriate entries for both Mid-South Urologists Group and Physicians Leasing from the inception of the lease through the second rental payment on April 1, 2006. Depreciation is recorded at the end of each fiscal year (December 31).
- Assume Mid-South Urologists Group leased the helicopter directly from the manufacturer, Rand Medical, which produced the machine at a cost of \$1.7 million. Prepare appropriate entries for Rand Medical from the inception of the lease through the second rental payment on April 1, 2006.

At the beginning of 2006, VHP Industries acquired a machine with a fair market value of \$6,074,700 by signing a four-year lease. Rentals are payable in four equal payments of \$2 million at the end of each year.

Required

- What is the effective rate of interest implicit in the agreement?
- Prepare the lessee's journal entry at the inception of the lease.
- Prepare the journal entry to record the first lease payment on December 31, 2006.
- Prepare the journal entry to record the second lease payment on December 31, 2007.
- Suppose the market value of the machine and the lessee's incremental borrowing rate were unknown at the time of the lease but that the lessee's incremental borrowing rate of interest for notes of similar risk was 10%. Prepare the lessee's entry at the inception of the lease.

Note: You may wish to compare your solution to this problem with that of Problems 14–17, which deal with a parallel situation in which the machine was acquired with an installment note. (Note: Problems 4–6 and 7 are three variations of the same basic situation.)

Werner Chemical, Inc. leased a protein analyzer on September 30, 2006. The five-year lease agreement calls for Werner to make quarterly lease payments of \$791,348, payable each September 30, December 31, March 31, June 30, with the first payment at September 30, 2006. Werner's incremental borrowing rate is 12%. Depreciation is recorded on a straight-line basis at the end of each fiscal year. The useful life of the equipment is five years.

Required

- Determine the present value of the lease payments at September 30, 2006 (at the nearest \$100).
- What prior accounts related to the lease would Werner report in its balance sheet at December 31, 2006?

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P 15-6

Direct financing lease
lessor financial
statement effects

• LQ5

P 15-7

Sales-type lease, lessor
financial statement
effects

• LQ6

P 15-8

Unguaranteed residual
value, direct financing
lease

• LQ7

Excel

P 15-9

Unguaranteed residual
value, executory costs,
sales type lease

• LQ8

Excel

- What pretax amounts related to the lease would Werner report in its income statement for the year ended December 31, 2006?
- What pretax amounts related to the lease would Werner report in its statement of cash flows for the year ended December 31, 2006?

Abbott Equipment leased a protein analyzer to Werner Chemical, Inc. on September 30, 2006. Abbott sold the machine from NutraLab, Inc. at a cost of \$6 million. The five-year lease agreement calls for Werner to make quarterly lease payments of \$39,148, payable each September 30, December 31, and March 31, June 30, with the final payment at September 30, 2011. Abbott's implicit interest rate is 12%.

Required:

- What pretax amounts related to the lease would Abbott report in its balance sheet at December 31, 2006?
- What pretax amounts related to the lease would Abbott report in its income statement for the year ended December 31, 2006?
- What pretax amounts related to the lease would Abbott report in its statement of cash flows for the year ended December 31, 2006?

NutraLab, Inc. leased a protein analyzer to Werner Chemical, Inc. on September 30, 2006. NutraLab sold the machine at a cost of \$5 million. The two-year lease agreement calls for Werner to make quarterly lease payments of \$39,148, payable each September 30, December 31, March 31, June 30, with the final payment at September 30, 2008. NutraLab's implicit interest rate is 12%.

Required:

- Determine the price at which NutraLab is "selling" the equipment (present value of the lease payments) at September 30, 2006 (to the nearest \$100).
- What pretax amounts related to the lease would NutraLab report in its balance sheet at December 31, 2006?
- What pretax amounts related to the lease would NutraLab report in its income statement for the year ended December 31, 2006?
- What pretax amounts related to the lease would NutraLab report in its statement of cash flows for the year ended December 31, 2006?

Note: Problems 15-6 and 15-7 are similar variations of the same basic situation.

On December 31, 2006, Rhone-Metro Industries leased equipment to Western Soya Co. for a four-year period ending December 31, 2010, at which time possession of the leased asset will revert back to Rhone-Metro. The equipment cost Rhone-Metro \$367,760 and has an expected useful life of six years. Its normal sales price is \$365,760. The lease-guaranteed residual value at December 31, 2010, is \$25,000. Payments under the lease are \$100,000 and are due on December 31 of each year. The first payment was made on December 31, 2006. Collectibility of the remaining lease payments is reasonably assured, and Rhone-Metro has no material cost uncertainties. Western Soya's incremental borrowing rate is 2%. Western Soya knows the interest rate implicit in the lease payments is 10%. Both companies use straight-line depreciation.

Required:

- Show how Rhone-Metro calculated the \$100,000 annual rental payments.
- How should this lease be classified: (a) by Western Soya Co. (the lessee) and (b) by Rhone-Metro Industries (the lessor)? Why?
- Prepare the appropriate entries for both Western Soya Co. and Rhone-Metro on December 31, 2006.
- Prepare an amortization schedule describing the pattern of interest over the lease term for the lessee and the lessor.
- Prepare all appropriate entries for both Western Soya and Rhone-Metro on December 31, 2007, for second-year payments and depreciation.
- Prepare the appropriate entries for both Western Soya and Rhone-Metro on December 31, 2008, assuming the equipment is returned to Rhone-Metro and the actual residual value on that date is \$5,000.

Rhone-Metro Industries manufactures equipment that is sold or leased. On December 31, 2006, Rhone-Metro leased equipment to Western Soya Co. for a four-year period ending December 31, 2010, at which time possession of the leased asset will revert back to Rhone-Metro. The equipment cost \$367,760 and has an expected useful life of six years. Its normal sales price is \$365,760. The lease-guaranteed residual value at December 31, 2010, is not guaranteed. Equal payments under the lease are \$100,000 (including \$4,000 executory costs) and are due on December 31 of each year. The first payment was made on December 31, 2006. Collectibility of the remaining lease payments is reasonably assured, and Rhone-Metro has no material cost uncertainties. Western Soya's incremental borrowing rate is 2%. Western Soya knows the interest rate implicit in the lease payments is 10%. Both companies use straight-line depreciation.

Required

1. Show how Rhone-Metro calculated the \$114,000 annual rental payments.
2. How should this lease be classified (a) by Western Soya Co. (the lessee) and (b) by Rhone-Metro Industries (the lessor)? Why?
3. Prepare the appropriate entries for both Western Soya Co. and Rhone-Metro on December 31, 2006.
4. Prepare an amortization schedule(s) describing the pattern of interest over the lease term for the lessee and the lessor.
5. Prepare the appropriate entries for both Western Soya and Rhone-Metro on December 31, 2007 (the second rent payment and depreciation).
6. Prepare the appropriate entries for both Western Soya and Rhone-Metro on December 31, 2016, assuming the equipment is returned to Rhone-Metro and the actual residual value on that date is \$ 500.

Rhone-Metro Industries manufactures equipment that is sold or leased. On December 31, 2006, Rhone-Metro leased equipment to Western Soya Co. for a noncancelable stated lease term of four years ending December 31, 2010, at which time possession of the leased asset will revert back to Rhone-Metro. The equipment cost \$300,000 in manufacture and has an expected useful life of six years. Its normal sales price is \$363,760. The expected residual value of \$25,000 at December 31, 2010, is not guaranteed. Western Soya Co. can exercise a bargain purchase option on December 30, 2009, at an option price of \$15,000. Rental payments under the lease are \$114,000 (including 34.18% annual financing costs) and are due on December 31 of each year. The first payment was made on December 31, 2006. Collectibility of the remaining lease payments is reasonably assured, and Rhone-Metro has no material cost uncertainties. Western Soya's incremental borrowing rate is 2%. Western Soya knows the interest rate implicit in the lease payments is 10%. Both companies use straight-line depreciation.

Hint: A lease term exists for accounting purposes when an option becomes exercisable if it is expected to be exercised (i.e., a 34.18%).

Required

1. Show how Rhone-Metro calculated the \$114,000 annual rental payments.
2. How should this lease be classified (a) by Western Soya Co. (the lessee) and (b) by Rhone-Metro Industries (the lessor)? Why?
3. Prepare the appropriate entries for both Western Soya Co. and Rhone-Metro on December 31, 2006.
4. Prepare an amortization schedule(s) describing the pattern of interest over the lease term for the lessee and the lessor.
5. Prepare the appropriate entries for both Western Soya and Rhone-Metro on December 31, 2007 (the second rent payment and depreciation).
6. Prepare the appropriate entries for both Western Soya and Rhone-Metro on December 30, 2009, assuming the BPO is exercised as then due.

Allied Industries manufactures high performance conveyors that often are leased to industrial customers. On December 31, 2006, Allied leased a conveyor to Pools Carriers Corporation for a three-year period ending December 31, 2009, at which time possession of the leased asset will revert back to Allied. The conveyor cost \$200,000 in manufacture and has an expected useful life of six years. Its normal sales price is \$639,405. The expected residual value of \$111,100 at December 31, 2009, is guaranteed by United Industries Group. Pools Carrier's incremental borrowing rate and the interest rate implicit in the lease payments are 6%.

Required

1. Show how Allied Industries calculated the \$200,000 annual rental payments.
2. How should this lease be classified (a) by Allied (the lessor) and (b) by Pools (the lessee)? Why?
3. Prepare the appropriate entries for both Pools and Allied on December 31, 2006.
4. Prepare an amortization schedule(s) describing the pattern of interest over the lease term.
5. Prepare the appropriate entries for both Pools and Allied on December 31, 2007, 2008, and 2009, assuming the conveyor is returned to Allied at the end of the lease and the actual residual value on that date is \$110,000.

Each of the four independent situations below describes a direct financing lease in which annual rental payments of \$10,000 are payable at the beginning of each year. Each is a capital lease for the lessee. Determine the following amounts at the inception of the lease.

- a. The lessor's investment in the lease.
- b. The lessee's liability at the lease inception.
- c. The lessor's net investment in the lease.
- d. The lessee's net liability at the lease inception.

- b. The lessee
5. Minimum lease payments
 6. Lessee asset
 7. Lessee liability

| | Situation | | | |
|--|-----------|---------|---------|---------|
| | 1 | 2 | 3 | 4 |
| Lease term (years) | 4 | 4 | 4 | 4 |
| Asset's useful life (years) | 4 | 5 | 5 | 5 |
| Lessee's implicit rate known by lessee | 10% | 11% | 11% | 11% |
| Lessee's incremental borrowing rate | 9% | 8% | 9% | 12% |
| Residual value | | | | |
| Guaranteed by lessee | 0 | \$4,000 | 0 | 0 |
| Guaranteed by third party | 0 | 0 | \$4,000 | 0 |
| Unguaranteed | 0 | 0 | 0 | \$4,000 |

P 5-3
Lease concepts

• LO3 LO5 LO7

Two independent situations are described below. For each, annual rental payments of \$100,000 are made at the beginning of each year for a 4-year lease for both the lessor and lessee. Determine the following amounts at the inception of the lease.

- A. The lessor:
1. Minimum lease payments
 2. Gross investment in the lease
 3. Net investment in the lease
 4. Annual revenue received
 5. Sales revenue
 6. Cost of goods sold
 7. Dealer's profit
- B. The lessee:
8. Minimum lease payments
 9. Lessee asset
 10. Lessee liability

| | Situation | | | |
|---|-----------|-----------|-----------|-----------|
| | 1 | 2 | 3 | 4 |
| Lease term (years) | 4 | 5 | 6 | 1 |
| Lessor's cost | \$369,750 | \$433,879 | \$500,000 | \$400,000 |
| Asset's useful life (years) | 6 | 7 | 7 | 5 |
| Lessee's implicit rate known by lessee | 10% | 12% | 9% | 9% |
| Lessee's incremental borrowing rate | 9% | 10% | 11% | 12% |
| Residual value | | | | |
| Guaranteed by lessee | 0 | \$ 53,000 | \$ 40,000 | \$ 60,000 |
| Guaranteed by third party* | 0 | 0 | 0 | \$ 50,000 |
| Unguaranteed | \$ 30,000 | 0 | \$ 35,000 | \$ 40,000 |
| Executive costs paid annually by lessor | \$ 1,000 | \$ 0,000 | \$ 5,000 | \$ 10,000 |

*Over a 10-year period, the lessor is expected to incur the residual value of the asset guaranteed by the lessee.

P 5-34
Executive costs: lessor and lessee

• LO3 LO5 LO9

Brandt Leasing leases (mechanical) equipment to industrial customers under direct financing leases. Brandt has a 10% rate of return for providing long-term financing. A lease agreement with Brandt contains the following terms: (1) annual payments of \$100,000 beginning December 31, 2006; (2) the inception of the lease; (3) the estimated useful life of the leased equipment is 5 years; (4) the residual value of the equipment is \$50,000. The equipment is classified as a capital asset. Brandt Management of the equipment will not use the straight-line method for depreciation with a useful life of 5 years. Service Company requires (1) annual payments of \$100,000 beginning December 31, 2006. Both companies use straight-line depreciation.

Required:

Prepare the appropriate entries for both the lessor and lessee to record the second lease payment and amortization on December 31, 2006, under each of three independent assumptions.

1. The lessee pays executive costs as incurred.
2. The contract specifies that the lessor pays executive costs as incurred. The lessee's total payments were increased to \$103,000 to include an amount sufficient to reimburse these costs.
3. The contract specifies that the lessor pays executive costs as incurred. The lessee's total payments were increased to \$103,000 to include an amount sufficient to reimburse these costs plus management fee for Brandt.

Hint: A lease term ends for accounting purposes when an option becomes exercisable if it's expected to be exercised. $\text{PV} = \$100,000 \times 0.84 = \$84,000$

5. Prepare the appropriate entries for Anything Grows and Mid-South on September 29, 2008, assuming the buy-sell plan/lease option was exercised on that date.

Collectibility of the real payments by Yoru Arts is reasonably predictable and there are no clues to the contrary.

k. Eight annual payments of \$4,000 beginning December 31, 2005, the expiration of the lease, and at each December 31 through 2012. Because Lessee's implicit interest rate was 10%, the estimated useful life of the plane is eight years. Payments were calculated as follows:

Amount to be recovered (fair market value)

\$645,526

Rent payments at the beginning

of each of the next eight years: (\$645,526 ÷ 5.86842%)

\$110,000

Present value of the above payments is \$110,000

Red Baron's incremental borrowing rate is 10%

- b. Costs of negotiating and consummating the completed lease transaction incurred by Bidwell Leasing were \$1,000.
- c. Collectibility of the rent payments by Bidwell Leasing is reasonably predictable and there are no costs to the lessor that are yet to be incurred.

Required:

- How should this lease be classified (a) by Bidwell Leasing (the lessor) and (b) by Red Baron Flying Club (the lessee)?
- Prepare the appropriate entries for both Red Baron Flying Club and Bidwell Leasing on December 31, 2005.
- Prepare an amortization schedule that describes the pattern of interest expense over the lease term for Red Baron Flying Club.
- Determine the effective rate of interest for Bidwell Leasing for the purpose of recognizing interest revenue over the lease term.
- Prepare an amortization schedule that describes the pattern of interest revenue over the lease term for Bidwell Leasing.
- Prepare the appropriate entries for both Red Baron and Bidwell Leasing on December 31, 2006 (the second rent payment). Both companies use straight-line depreciation.
- Prepare the appropriate entries for both Red Baron and Bidwell Leasing on December 31, 2007 (the final rent payment).

Note: The problem is a variation of the preceding problem, modified to cause the lease to be a sales-type lease.

Bidwell Leasing purchased a single engine plane for \$400,000 and leased it to Red Baron Flying Club for its fair market value of \$645,526 on December 31, 2005.

Terms of the lease agreement and related facts were:

- a. Eight annual payments of \$110,000, beginning December 31, 2005, the inception of the lease, on each December 31 through 2012. Bidwell Leasing's implicit interest rate was 10%. The estimated useful life of the plane is eight years. Payments were calculated as follows:

Amount to be recovered (fair market value)

\$645,526

Rent payments at the beginning

of each of the next eight years: (\$645,526 ÷ 5.86842%)

\$110,000

Present value of the above payments is \$110,000

Red Baron's incremental borrowing rate is 10%

- b. Costs of negotiating and consummating the completed lease transaction incurred by Bidwell Leasing were \$1,000.
- c. Collectibility of the rent payments by Bidwell Leasing is reasonably predictable and there are no costs to the lessor that are yet to be incurred.

Required:

- How should this lease be classified (a) by Bidwell Leasing (the lessor) and (b) by Red Baron Flying Club (the lessee)?
- Prepare the appropriate entries for both Red Baron Flying Club and Bidwell Leasing on December 31, 2005.
- Prepare an amortization schedule that describes the pattern of interest expense over the lease term for Red Baron Flying Club.
- Prepare the appropriate entries for both Red Baron and Bidwell Leasing on December 31, 2006 (the second rent payment). Both companies use straight-line depreciation.
- Prepare the appropriate entries for both Red Baron and Bidwell Leasing on December 31, 2007 (the final rent payment).

To raise operating funds, North American Courier Corporation sold its building on January 1, 2006, to an insurance company for \$500,000 and immediately leased the building back. The lease is for a 10-year period ending December 31, 2015, at which time ownership of the building will revert to North American Courier. The building has a carrying amount of \$400,000 (original cost \$600,000). The lease requires North American to make payments of \$80,000 to the insurance company each December 31. The building has a total original useful life of 10 years with no residual value and is being depreciated on a straight-line basis. The lease is an implicit rate of 12%.

P 15-10
Initial direct costs,
sales-type lease

LO1, LO2, LO3

P 15-19
Sale-leaseback

LO1, LO2, LO3

Required:

1. Prepare the appropriate entries for North American for (a) January 2006 to record the sale-leaseback and (b) December 31, 2006, to record necessary adjustments.
2. Show how North American's December 31, 2006, balance sheet and income statement would reflect the sale-leaseback.

On January 1, 2006, Cook Textiles leased a building with two acres of land from Pack Development. The lease is for 10 years. No purchase option exists and the property will revert to Pack at the end of the lease. The building and land combined have a fair market value on January 1, 2006, of \$2,450,000 and the building has an estimated life of 20 years with a residual value of \$150,000. The lease calls for Cook to assume all costs of ownership and to make annual payments of \$200,000 due at the beginning of each year. On January 1, 2006, the estimated value of the land was \$400,000. Cook uses the straight-line method of depreciation and pays 70% interest on borrowed money. Pack's implicit rate is unknown.

Required:

- a. Prepare journal entries for Cook, entries for SOA. Assume the land could be rented without the building for \$50,000 each year.
- b. Assuming the land had a fair market value on January 1, 2006, of \$700,000 and could be sold alone for \$300,000, prepare journal entries for Cook Textiles for 2006.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider the global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Case 15-1 Leasing Leases on the Edge of Bankruptcy

Read Corporation

Read Corporation
is a public company
that has filed for
Chapter 11 protection
under the U.S. Bankruptcy
Court. The company
is currently in
restructuring.

Read Corporation

Refer to the financial statements and related disclosure notes of FedEx Corporation in the appendix at the end of this book. Management's Discussion and Analysis states that "Occasionally, management" practices in recent years with respect to funding new aircraft acquisitions in a way to finance such financing through debt financing, which may result in a higher debt-to-equity ratio and a higher interest rate.

Required:

1. What does FedEx's management mean when it says some leases "qualify as off-balance-sheet financing?"
2. See Note 7 in the disclosure notes. What is FedEx's capital lease liability?
3. If the operating leases were capitalized, approximately how much would that increase the capital lease liability?
4. What effect would that have on the company's debt-equity ratio?

"I don't see that in my intermediate accounting text, derived from college," you explain to another member of the accounting division of Dowell Chemical Corporation. "This will take some research." Your conversation pertains to the appropriate accounting treatment of a proposed sublease of warehouses Dowell has used for product storage.

Dowell leased the warehouses one year ago on December 31. The five-year lease agreement called for Dowell to make quarterly lease payments of \$2,398,343, payable each December 31, March 31, June 30, and September 30, with the first payment at the lease's inception. As a capital lease, Dowell has recorded the leased asset and liability at \$40 million, the present value of the lease payments at 8%. Dowell records depreciation on a straight-line basis at the end of each fiscal year.

Today, Jason True, Dowell's controller, explained a proposal to sublease the warehouses to American Tankers, Inc. for the remaining four years of the lease term. American Tankers would be subleased as lessee under the original lease agreement. As the new lessee, it would become the primary obligor under the agreement. But Dowell would be secondarily liable for fulfilling the obligations under the lease agreement. Indications are that it would be reasonably possible, though not likely, that American Tankers would default and Dowell would be required to fulfill those obligations. "Check on how we would need to account for this and get back to me," he had said.

Required:

After the first full year under the warehouse lease, what is the balance in Dowell's lease liability? An amortization schedule will be helpful in determining this amount.

1. After the first full year under the warehouse lease, what is the carrying amount after accumulated depreciation of Dowell's leased warehouses?

Required:

On the basis of the information the disclosures provide, compare lease accounting for leases in the United Kingdom with that in the United States.

At December 31, 2004, American Airlines had 13 jet aircraft under operating leases and 94 percent under capital leases. Table discloses appropriating American's 2004 financial statements are reproduced below.

Note 5. Leases (in part)

American Airlines leases various types of aircraft, including narrow body and wide body aircraft, on a fixed and variable rate lease structure. The lease agreements typically require the lessee to maintain the aircraft in a certain condition and to insure the aircraft against theft and damage. The lease agreements also typically require the lessee to maintain the aircraft in a certain condition and to insure the aircraft against theft and damage. The lease agreements also typically require the lessee to maintain the aircraft in a certain condition and to insure the aircraft against theft and damage.

| Year Ending December 31, | Capital
Leases | Operating
Leases |
|---|-------------------|---------------------|
| 2005 | \$ 2 | \$ 2,066 |
| 2006 | 233 | 979 |
| 2007 | 8 | 932 |
| 2008 | 275 | 93 |
| 2009 | 174 | 930 |
| 2010 and subsequent | 950 | 525 |
| Less amount representing interest | 80 | 141 |
| Present value of net minimum lease payments | \$ 1,860 | |

American's capital lease liability is reported among other debt on the balance sheet. The company's debt totaled \$25,587 million. Some analysts might consider operating lease commitments as equivalent to debt when assessing financial risk. If American's operating leases were capitalized as capital leases, lease payments would be capitalized as the present value of all future payments.

1. If the interest rate used by American to discount rental payments on capital leases is 2% and rentals after 2009 are payable approximately evenly over the following 9 years, approximated as \$7,529 + 91% when is the debt equivalent to operating lease commitments?
2. If operating lease commitments are considered equivalent to debt, what percentage of American's debt is represented by lease liabilities?

Solution: Helix is one of the world's largest food retailers, operating 1,871 stores in the United States and Canada. Approximately 90 percent of the company's stores are leased. The following information is disclosed in the company's financial statements:

Balance Sheet
(\$ in millions)

| | 2004 | 2003 |
|--|---------|---------|
| Assets | | |
| Property: | | |
| Property under capital lease | \$773.5 | \$758.1 |
| Less: Accumulated amortization | (230.9) | (181.6) |
| Liabilities | | |
| Current liabilities: | | |
| Current obligations under capital leases | \$2.8 | \$0.5 |
| Long-term debt: | | |
| Obligation under capital leases | \$34.0 | \$28.3 |

Required:

1. Discuss some possible reasons why Helix leases rather than purchases most of its premises.
2. The net asset "property under capital lease" has a 2004 balance of \$542.6 million (\$773.5 - 230.9). Calculate for capital leases total \$476.8 (\$2.8 + \$474.0). Why do the asset and liability amounts differ?

period's earnings. What gives?" he wondered. "But it is a mess, will you? I'm having trouble following what you're saying to me."

What's going on?

Write a memo to your "MC" include discussion of each of these points:

1. How the sale portion of the sale-leaseback transaction should be accounted for at the lease's inception.
2. How the gain on the sale portion of the sale-leaseback transaction should be accounted for during the lease term.
3. How the leaseback portion of the sale-leaseback transaction should be accounted for at the lease's inception.
4. The conceptual basis for capitalizing certain long-term leases.

The following FreshBooks case is recommended for use with this chapter. The case provides an excellent opportunity for class discussion, group projects, and writing assignments. The case, along with Professor's Discussion Material, can be obtained from the FreshBooks FreshBooks at its Website: www.freshbooks.com/cases/case-studies.

Case 14-4: Power Station

This case gives students the opportunity to use their judgment in evaluating appropriate lease accounting for the sale and leaseback of equipment.

CPA SIMULATION 15-1

GA Company

CPA Review



Test your knowledge of the concepts discussed in this chapter practice critical performance skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulations at the test website: www.kaplancpareview.com.

The GA Company simulation tests your knowledge of (a) the way we account for and report leases from the perspective of both the lessee and lessor, (b) how lease accounting is influenced by bargain purchase options and guaranteed residual value, and (c) accounting for sale-leaseback arrangements.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and problem-solving strategies such as identify, research, derive, calculate, and compare, as well as being asked to make a choice in a simulated environment. Guided by the following instructions:

| | | | | | | | | |
|--|---|--|------------|------|-----------|------|------|--|
| | Financial Accounting and Reporting | Time Elapsed
0 hours 0 minutes | | | | | | |
| | | | Calculator | Flag | Standards | Test | Help | |

Specific tasks in the simulation include:

- Completing a worksheet pertaining to current income recognition on a sales-type lease
- Demonstrating an understanding of the way a lessee accounts for a capital lease
- Demonstrating an understanding of the way a lessor accounts for a sales-type lease
- Applying judgment in deciding how bargain purchase options, residual value, and sale-leaseback arrangements affect lease accounting
- Communicating the criteria applied when classifying leases
- Researching whether sale-leaseback method is appropriate in a specific situation described.

16

CHAPTER

Accounting for Income Taxes

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Describe the types of temporary differences that cause deferred tax liabilities and determine the amounts needed on a period-period income taxes.
- LO2 Identify and describe the types of temporary differences that cause deferred tax assets.
- LO3 Describe when and how a valuation allowance is recorded for deferred tax assets.
- LO4 Explain why nontemporary differences have no deferred tax consequences.
- LO5 Explain how a change in tax rates affects the measurement of deferred tax amounts.
- LO6 Determine income tax amounts when multiple temporary differences exist.
- LO7 Describe when and how an operating loss carryforward and an operating loss carryback are recognized in the financial statements.
- LO8 Explain how deferred tax assets and deferred tax liabilities are classified and reported in a company's financial statements and related disclosures.
- LO9 Explain intraperiod tax allocation.

FINANCIAL REPORTING CASE



What's the Difference?

The board of directors for Times-Lehrer Industries is meeting for the first time since Laura Lynn was asked to join the board. Laura was the director of the regional office of United Charities. Although she has broad experience with the tax advantages of charitable giving and the vast array of investment vehicles available to donors, her 30 years of experience with not-for-profit organizations has not exposed her to the issues involved with corporate taxation. This gap in her considerable business knowledge causes her to turn to you, Times-Lehrer's CFO and long-time friend, who recommended Laura for appointment to the board.

"I must say," Laura confided, "I've looked long and hard at these statements, and I can't quite

grasp why the amount reported for income tax expense is not the same as the amount of income taxes we paid. What's the difference?"

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your response to the solution provided at the end of the chapter.

QUESTIONS

1. What's the difference? Explain to Laura how differences between financial reporting standards and income tax rules might cause the two tax amounts to differ (page 774).
2. What is the conceptual advantage of determining income tax expense as we do? (page 774).
- List the differences between financial reporting standards and income tax rules that will not contribute to the difference between income tax expense and the amount of income taxes paid? (page 786).

PART A

DEFERRED TAX ASSETS AND DEFERRED TAX LIABILITIES

FINANCIAL REPORTING CASE

A manufacturer of leather accessories in the Midwest is obligated to pay the Internal Revenue Service \$24 million in income taxes as determined by its 2006 income tax return. Other \$9 million in income taxes also is attributable to 2006 activities. Conveniently, tax laws permit the company to defer paying the additional \$9 million until subsequent years by reporting certain revenues and expenses on the tax return in years other than what reported on the income statement. Does the company have only a current income tax liability of \$24 million? Or does it also have a deferred income tax liability for the other \$9 million? To phrase the question differently: Should the company report a 2006 income tax expense of the \$24 million tax payable for the current year, or \$33 million to include the future tax effects of events already recognized? For perspective on this question, we look closer at the circumstances that might create the situation. Such circumstances are called *temporary differences*.

Conceptual Underpinning

When a company prepares its tax return for a particular year, the revenues and expenses reported included on the return are, by and large, the same as those reported on the company's income statement for the same year. However, in some instances tax laws and financial reporting standards differ. The reason they differ is that the fundamental objectives of each reporting standard are not the same. Financial accounting standards are established to provide useful information to investors and creditors. Congress, through the Internal Revenue Service, on the other hand, is primarily concerned with public revenues in a socially acceptable manner and, frequently, with influencing the behavior of taxpayers. In pursuing the latter objective, Congress uses tax laws to encourage activities it deems desirable, such as investment in productive assets, and to discourage activities deemed undesirable, such as violations of law.

A consequence of differences between GAAP and tax rules is that tax expenses frequently occur in years different from when the revenues and expenses that cause them are generated. The financial reporting issue is when the tax expense should be recognized. The issue has generated considerable controversy for decades. In 1967 the pronouncement through *APB 17* embraced the concept of reporting income tax expense in the same period as events that give rise to the expense, regardless of when the tax actually is paid. The pronouncement recognized this approach as being consistent with the accrual concept of accounting. The primary focus of that pronouncement was the matching principle. Income tax expense was calculated on the basis of pretax income reported on the income statement. Differences between the expense and the tax currently paid were reported on the balance sheet not as deferred liabilities (or assets) but as nebulous deferred credits (or debits).²

APB 17 was replaced in 1987 by *SFAS 96*, which reiterated the objective of reporting deferred taxes but redirected the focus to an asset-liability approach.³ This balance sheet focus emphasizes reporting the future tax source (or benefit) attributable to temporary differences between the reported amounts of an asset or liability in the financial statements and its tax basis.⁴ Plagued by implementation complexities, *SFAS 96* was delayed three times and replaced in 1992 with *SFAS 109* before ever becoming mandatory.⁵ The current standard modified some of the more troublesome measurement and recognition requirements but retained the essential flavor of *SFAS 96*. That is, the objective of accounting for income taxes is to recognize a deferred tax liability or deferred tax asset for the tax consequences of amounts that will become taxable or deductible in future years as a result of transactions.

APB 17 focused on the

² "The balance sheet credit or debit is not a liability or asset, but a deferred tax credit or debit."

³ "The balance sheet credit or debit is not a liability or asset, but a deferred tax credit or debit."

⁴ "The balance sheet credit or debit is not a liability or asset, but a deferred tax credit or debit."

⁵ "The balance sheet credit or debit is not a liability or asset, but a deferred tax credit or debit."

events that already have occurred. Future taxable amounts, not future deductible amounts, arise as a result of temporary differences. We discuss these now.

Temporary Differences

Temporary differences arise in computing taxable income and those for financial reporting. These differences have originated in the income tax expense for a period other than the period when they are reversed. A future tax effect is expected to be associated with the included or excluded income in a future period. For example, you learned in Chapter 15 that income from selling property on an installment basis is reported for financial reporting purposes in the year of the sale. But tax laws permit installment income to be reported on the tax return as it actually is received by the installment method. This means taxable income might be less than accounting income in the year of sale, and it will be higher than accounting income in later years when installments are received.

The situation just described creates what is termed as a *temporary difference* between pretax accounting income and taxable income and, consequently, between the reported amount of an asset or liability in the financial statements and its tax basis. In our example, the asset for which the temporary difference exists is the installment receivable that is recognized for financial reporting purposes, but not for tax purposes.

Deferred Tax Liabilities

It is important to understand that a temporary difference originates in one period and reverses, or turns around, in one or more subsequent periods. The temporary difference described above originates in the year the installment sales are made and are reported on the income statement and then reverses when the installments are collected and income is reported on the tax return. An example is provided in Illustration 16-1.

Kern, Inc. and Management reported pretax income in 2006 of \$100 million and in 2007 and 2008 of \$100 million. In addition, 2006 income of \$40 million from installment sales of property. However, the installment sales income is reported on the tax return when received in 2007 (\$10 million) and 2008 (\$30 million). The combined tax rate is 30% over the

three periods.

| | Temporary Difference | | | |
|---|----------------------|----------|-------|-------|
| | Originates | Reverses | | Total |
| | 2006 | 2007 | 2008 | |
| Accounting income | \$ 40 | \$100 | \$100 | \$340 |
| Installment sale income on the income statement | 40 | 0 | 0 | 40 |
| Installment sale income on the tax return | 0 | 10 | 30 | 40 |
| Taxable income | \$ 40 | \$110 | \$130 | \$340 |

Each tax method is calculated as a multiple of the accounting income. In 2006, the tax rate is 30% on the accounting income of \$40 million. In 2007 and 2008, the tax rate is 30% on the accounting income of \$100 million. The combined tax rate is 30% over the three periods.

Notice that accounting income and taxable income total the same amount over the three-period period but are different in each individual year. In 2006, accounting income is \$40 million higher than taxable income because it does not include income from installment sales. The difference is temporary, though, that situation reverses in the next two years. In 2007 and 2008, taxable income is more than accounting income because income from installment sales reported on the income statement in 2006, becomes taxable during the next two years as installments are collected.

Because tax laws permit the company to delay reporting, this income is paid off taxable income, the company is able to defer paying the tax on that income. The tax is not avoided, just

• LO1

ILLUSTRATION 16-1

Revenue Reported on the Tax Return after the Income Statement

In 2006, taxable income is \$40 million, which is less than accounting income of \$40 million because it does not include income from installment sales. The difference is temporary, though, that situation reverses in the next two years. In 2007 and 2008, taxable income is more than accounting income because income from installment sales reported on the income statement in 2006, becomes taxable during the next two years as installments are collected.

The 2006 tax liability is paid in the next two years.

deferred in the meantime the company has a liability for the income tax deferred. This liability originates in 2006 and is paid over the next two years as follows:

| Deferred Tax Liability | | | | |
|------------------------|----|----|-----------------------|--|
| (\$ in millions) | | | | |
| | | 16 | 2006 (\$40 × 40%) | |
| 2007 (\$10 × 40%) | 4 | | | |
| 2008 (\$30 × 40%) | 12 | | | |
| | | 0 | Balance after 3 years | |

At the end of 2006, financial and taxable income for 2007 and 2008 are, of course, not known. We assumed knowledge of this information above so we could compare the three-year effect of the temporary difference, not seeing the future is unnecessary to determine amounts needed to record income taxes in 2006. This is demonstrated in Illustration 16-1A.

ILLUSTRATION 16-1A

Determining and Recording Income Taxes—2006

| | Current Year
2006 | Future Taxable
Amounts | | Future Taxable
Amounts
(total) |
|---|----------------------|---------------------------|------|--------------------------------------|
| | | 2007 | 2008 | |
| Accounting income | \$140 | | | |
| Temporary difference: | | | | |
| Installment income | (4) | \$10 | \$30 | \$40 |
| Taxable income | \$140 | | | |
| Enacted tax rate | 40% | | | |
| Tax payable currently | \$56 | | | |
| Deferred tax liability | | | | \$16 |
| | | Deferred tax liability | | \$16 |
| Deferred income tax expense | | | | \$16 |
| Less: Balance at beginning of year | | | | 0 |
| Change in deferred tax liability | | | | \$16 |
| Journal Entry at the End of 2006 | | | | |
| Income tax expense (to balance) | | | | \$16 |
| Income tax payable (to balance above) | | | | \$56 |
| Deferred tax liability (to balance above) | | | | \$16 |

With future taxable amounts of \$40 million, taxable at 40%, a \$16 million deferred tax liability is indicated. Since no previous balance exists, this amount is added to the liability.

Each year, income tax expense comprises both the current and the deferred tax consequences of events and transactions already recognized. This means we

1. Calculate the income tax that is payable currently.
2. Separately calculate the change in the deferred tax liability (or asset).
3. Combine the two to get the income tax expense.

Using the 2007 and 2008 income numbers, the journal entries to record income taxes those years would be:

| 2007 | | (\$ in millions) | |
|---|-----------|------------------|-----|
| Income tax expense (to balance) | | 40 | |
| Deferred tax liability (\$20 million × 40%) | 8 million | 8 | |
| Income tax payable (\$1 million × 40%) | | | 0.4 |

At the end of 2007, the deferred tax liability and net income balance of \$1 million. Since the balance at the end of 2006 was \$16 million, we reduce it by \$4 million.

2006

Income tax expense (to balance)
 Deferred tax liability (\$0 million - 2 million)
 Income tax payable (to balance) 40%

40

12

52

At the end of 2006, the deferred tax liability should have a balance of \$2 million. Since the company's 2006 million income

THE FASB'S BALANCE SHEET APPROACH

perspective is this: a company's tax expense is an income statement effect of the income tax expense and the changes in the deferred tax liability and the temporary difference items. Another perspective is that the deferred tax liability is a balance sheet item. From this viewpoint, we gain a deferred tax liability (asset) if the tax effect of the temporary difference between the financial statement carrying amount of an asset (liability) and its tax basis. The tax basis of an asset (or liability) is its original value for tax purposes reduced by any amounts credited to date on tax returns. In our example, a temporary book-tax difference exists for a receivable from installment sales that's recognized for financial reporting purposes but not for tax purposes. When a company sells something on an installment basis, it reports a receivable from a tax perspective, though, there is no receivable because a "taxable sale" doesn't occur until installments are collected. This is shown in Illustration 16-1B.

An installment sale is a sale where the seller receives cash or property over a period of time.

| | December 31
(\$ in millions) | | | | | |
|------------------------------------|---------------------------------|------|-----------------------|------|------|-----|
| | 2006 | | 2007 | | 2008 | |
| Receivables from installment sales | | | | | | |
| Accounting basis | 0 | \$40 | 0 | \$30 | 0 | \$0 |
| Tax basis | 0 | 0 | 0 | 0 | 0 | 0 |
| Temporary difference | 0 | \$40 | 0 | \$30 | 0 | \$0 |
| Rate | 40% | | 40% | | 40% | |
| Deferred tax liability | | \$16 | | \$12 | | \$0 |
| | Originating Differences | | Reversing Differences | | | |

ILLUSTRATION 16-1B
Balance Sheet
Perspective

The deferred tax liability is a liability because it represents a future tax expense. The deferred tax liability is a liability because it represents a future tax expense. The deferred tax liability is a liability because it represents a future tax expense.

Of course, the income statement view and the balance sheet view are two different perspectives on the very same event. In this example, we derive the same deferred tax liability whether we view it as a result of a temporary difference (a) between accounting and taxable income or (b) between the financial statement carrying amount of an installment receivable and its tax basis. We illustrate this through the balance sheet approach since FASB defines deferred assets and liabilities that meet the definitions of assets and liabilities provided by the FASB's conceptual framework. As specified by SFAC 6, assets represent "probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events," and liabilities are "probable future sacrifices of economic benefits as a result of past transactions or events." In our example, the probable future sacrifices of economic benefits are the payments of \$4 million in 2007 and \$12 million in 2008. The past transactions or events resulting in the future tax payments are the installment sales in 2006.

\$40 million is a liability because it represents a future tax expense. The deferred tax liability is a liability because it represents a future tax expense. The deferred tax liability is a liability because it represents a future tax expense.

TYPES OF TEMPORARY DIFFERENCES

Examples of temporary differences are provided in Chapter 16.

GRAPHIC 16-1**Types of Temporary Differences**

| | Revenues (or gains) | Expenses (or losses) |
|--|--|---|
| Items reported or deducted after the income statement | <ul style="list-style-type: none"> ▪ Installment method for sales ▪ Depreciated - from book value when asset is sold | <ul style="list-style-type: none"> ▪ Estimated expenses and losses on deductible when paid ▪ Unrealized loss from recording investment at fair value if temporary and FM as determined when asset is sold |
| Items reported or deducted before the income statement | <ul style="list-style-type: none"> ▪ Rent collected in advance ▪ Subscriptions collected in advance ▪ Other revenues collected in advance | <ul style="list-style-type: none"> ▪ Accelerated depreciation on tax return straight-line depreciation in the income statement ▪ Prepaid expenses (not deductible when paid) |

- The temporary differences shown in the diagonal purple areas create *deferred tax liabilities* because they result in *taxable amounts* in some future year(s) when the related assets are recovered or the related liabilities are settled (when the temporary differences reverse).
- The temporary differences in the opposite diagonal (blue) areas create *deferred tax assets* because they result in *deductible amounts* in some future year(s) when the related assets are recovered or the related liabilities are settled (when the temporary differences reverse).

ADDITIONAL CONSIDERATION

Temporary differences between the reported amount of an asset or liability in the financial statements and its tax basis are primarily caused by revenues, expenses, gains, and losses being included in taxable income in a year earlier or later than the year in which they are recognized for financial reporting purposes as illustrated in Graphic 16-1. Other events also can cause temporary differences between the reported amount of an asset or liability in the financial statements and its tax basis. Three other such events that are beyond the scope of this text book are briefly described in "Accounting for Income Taxes," Statement of Financial Accounting Standards No. 109 (Norwalk, Conn.: FASB, 1992), par. 11 a-h. Our discussions in this chapter focus on temporary differences caused by the timing of revenue and expense recognition, but it is important to realize that the concept of temporary differences embraces all differences that will result in taxable or deductible amounts in future years.

We note in notice that deferred tax liabilities can arise from either (a) a revenue being reported in the tax return after the income statement or (b) an expense being reported in the tax return before the income statement. Our previous illustration was of the first type. We look at the second in Illustration 16-2.

Notice, too, that this temporary difference originates during more than a single year before it begins to reverse. This usually is true when depreciation is the cause of the temporary difference. Tax laws typically permit the cost of a depreciable asset to be deducted on the tax return sooner than it is reported as depreciation on the income statement.⁷ This means taxable income will be less than accounting income during the years the tax deduction is required.

⁷Research: The accelerated depreciation method presented in this text is made of the modified accelerated cost recovery system (MACRS). The method is described in Chapter 17.

Which Tangentary Services, started operations in 2006. In 2006 and 2009, a \$100 million asset was acquired for \$100 million. The asset is depreciated for financial reporting purposes over 10 years on a straight-line basis to its residual value. For accounting purposes, the asset cost is deducted by MACRS over 2006–2015 as follows: \$33 million, \$14 million, \$5 million, and \$0 million. No other depreciable assets were acquired. The enacted rate is 30% each year.

(\$ in millions)

| | Temporary Difference | | | | |
|--------------------------------------|----------------------|-------|----------|-------|-------|
| | Originales | | Reverses | | Total |
| | 2006 | 2007 | 2008 | 2009 | |
| Accounting income | \$100 | \$100 | \$100 | \$100 | \$400 |
| Depreciation on the income statement | 25 | 25 | 25 | 25 | 100 |
| Depreciation on the tax return | 33 | 44 | 5 | (8) | 100 |
| Taxable income | \$ 92 | \$ 81 | \$110 | \$ 77 | \$400 |

Illustration 16-2

Expense Reported on the Tax Return before the Income Statement

To determine taxable income, we add back to accounting income the actual depreciation expense of \$100 million. The taxable income is \$300 million.

on income statement depreciation, but higher than accounting income in later years when depreciation reverses.

2006 income taxes would be recorded as follows in Illustration 16-2A.

(\$ in millions)

| | Current Year
2006 | Future Taxable
Amounts | | Future Taxable
Amounts
Total | |
|---|----------------------|---------------------------|------|------------------------------------|--------------|
| | | 2007 | 2008 | 2009 | |
| Accounting income | \$100 | | | | |
| Temporary difference: | | | | | |
| Depreciation | (8) | \$(17) | \$10 | \$17 | \$6 |
| Taxable income | \$ 92 | | | | |
| Enacted rate 30% | | | | | |
| Tax payable currently | <u>\$36.8</u> | | | | |
| Deferred tax liability | | | | | \$3.2 |
| | | | | | <u>\$3.2</u> |
| | | | | | <u>\$3.2</u> |
| Journal Entry at the End of 2006 | | | | | |
| Income tax expense (debit balance) | | | | 40 | |
| Income tax payable (determined above) | | | | | 36.8 |
| Deferred tax liability (determined above) | | | | | 3.2 |

Illustration 16-2A

Determining and Recording Income Taxes—2006

Taxable income is \$92 million. The tax payable is \$36.8 million because that much more depreciation is recorded on the 2006 tax return (\$33 million) than is reported on the income statement (\$8 million).

Income tax expense is composed of two amounts: \$36.8 million for the current year and \$3.2 million for the future years.

Let's follow the determination of income taxes for this firm through the complete reversal of the temporary difference. We assume accounting income is \$100 million each year and that the only difference between accounting and taxable income is caused by depreciation. 2007 income taxes would be determined as shown in Illustration 16-2B.

Notice that each year the appropriate balance is determined for the deferred tax liability. Tax amounts are computed with any existing balance to determine whether the account must be either increased or decreased.

Income taxes for 2008 would be recorded as shown in Illustration 16-2C.

ILLUSTRATION 16-2B**Determining and Recording Income Taxes—2007**

The cumulative temporary difference of the sum of the amounts reversing in 2006 (\$8 million) and in 2007 (\$19 million) is \$27 million. Since a balance of \$3.2 million already exists, \$2.4 million must be added.

Since a balance of \$3.2 million already exists, \$2.4 million must be added.

(\$ in millions)

| | 2006 | Current Year
2007 | Future Taxable
Amounts | | Future Taxable
Amounts |
|---|------|----------------------|---------------------------|------|---------------------------|
| | | | 2008 | 2009 | 2010 |
| Accounting income | | \$100 | | | |
| Temporary difference: | | | | | |
| Depreciation | \$18 | 9 | 5 | 5 | 5 |
| Taxable income | | 81 | | | |
| Enacted tax rate | | 40% | | | |
| Tax payable currently | | \$32.4 | | | |
| Deferred tax liability | | | | | 13.6 |
| Deferred Tax Liability | | | | | |
| Ending balance | | | | | 13.6 |
| Less: Beginning balance | | | | | 0 |
| Change in balance | | | | | 13.6 |
| Journal Entry at the End of 2007 | | | | | |
| Income tax expense (to balance) | | | | 40 | |
| Income tax payable (determined above) | | | | | 32.4 |
| Deferred tax liability (determined above) | | | | | 13.6 |

ILLUSTRATION 16-2C**Determining and Recording Income Taxes—2008**

A credit balance of \$6.8 million is needed in the deferred tax liability account.

Since a credit balance of \$10.4 million already exists, \$4 million must be subtracted.

A portion of the tax deferred from 2006 will be paid in 2008.

(\$ in millions)

| | 2008 | 2007 | Current Year
2008 | Future Taxable
Amounts
2009 | Future Taxable
Amounts
2010 |
|---|------|------|----------------------|-----------------------------------|-----------------------------------|
| Accounting income | | | \$100 | | |
| Temporary difference: | | | | | |
| Depreciation | \$20 | \$19 | 10 | 5 | |
| Taxable income | | | \$110 | | |
| Enacted tax rate | | | 40% | | |
| Tax payable currently | | | \$44 | | |
| Deferred tax liability | | | | | 13.6 |
| Deferred Tax Liability | | | | | |
| Ending balance | | | | | 13.6 |
| Less: Beginning balance | | | | | 13.6 |
| Change in balance | | | | | 0 |
| Journal Entry at the End of 2008 | | | | | |
| Income tax expense (to balance) | | | | 40 | |
| Income tax payable (determined above) | | | | | 44 |
| Deferred tax liability (determined above) | | | | | 13.6 |

Income taxes for 2009 would be recorded as shown in Illustration 16-2D. Note that the deferred tax liability is increased in 2008-2009 and decreased in 2009-2010.

| Deferred Tax Liability | | | |
|------------------------|-----|-----------------------|--------------------|
| (\$ in millions) | | | |
| | 3.2 | 2006 (\$ 8 × 40%) | |
| 2008 (\$ 10 × 40%) | 4.0 | 7.6 | 2007 (\$ 19 × 40%) |
| 2009 (\$ 10 × 40%) | 4.0 | | |
| | 0 | Balance after 4 years | |

When temporary differences are created, the deferred tax liability is increased. When the temporary differences are reversed, the deferred tax liability is decreased.

(\$ in millions)

| | 2006 | 2007 | 2008 | Current Year 2009 | Future Taxable Amounts total |
|---------------------------------------|------|------|------|-------------------|------------------------------|
| Accounting income | | | | \$100 | |
| Temporary difference: | | | | | |
| Depreciation | \$10 | \$19 | \$ | \$7 | \$ |
| Taxable income | | | | \$107 | |
| Enacted tax rate | | | | 40% | 40% |
| Income tax payable currently | | | | \$ 42.8 | |
| Deferred tax liability | | | | | 4.0 |
| Deferred Tax Liability | | | | | 4.0 |
| 2006 | | | | | 3.2 |
| 2007 | | | | | 1.6 |
| 2008 | | | | | 0 |
| 2009 | | | | | 0 |
| Journal Entry at the End of 2009 | | | | | |
| Income tax expense | | | | 40.0 | |
| Income tax payable (determined above) | | | | | 42.8 |
| Deferred tax liability | | | | | 4.0 |

ILLUSTRATION 16-20

Determining and Recording Income Taxes—2009

When the temporary differences are reversed, the deferred tax liability is decreased. When the temporary differences are reversed, the deferred tax liability is decreased. When the temporary differences are reversed, the deferred tax liability is decreased.

We can see this result from the alternative perspective of working up the net temporary taxable asset when we have a net depreciable asset. Its carrying amount is its cost minus accumulated depreciation. Its tax basis is cost minus the accumulated depreciation for tax purposes.

(\$ in millions)

| | December 31 | | | | | | | |
|------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|
| | 2006 | 2007 | 2008 | 2009 | 2006 | 2007 | 2008 | 2009 |
| Depreciable asset: | | | | | | | | |
| Accounting basis | \$100 | \$ 75 | \$ 50 | \$ 25 | \$ 100 | \$ 75 | \$ 50 | \$ 25 |
| Tax basis | 100 | 67 | 54 | 41 | 100 | 67 | 54 | 41 |
| Temporary difference | \$ 0 | \$ 8 | \$ 4 | \$ 14 | \$ 0 | \$ 8 | \$ 4 | \$ 14 |
| Enacted tax rate | | 40% | 40% | 40% | | 40% | 40% | 40% |
| Deferred tax liability | | \$ 3.2 | \$ 1.6 | \$ 5.6 | | \$ 3.2 | \$ 1.6 | \$ 5.6 |

When the temporary differences are reversed, the deferred tax liability is decreased. When the temporary differences are reversed, the deferred tax liability is decreased.

Deferred Tax Assets

The temporary differences illustrated to this point produce future taxable amounts when the temporary differences reverse. Future taxable amounts mean taxable income will be greater relative to accounting income in one or more future years. Sometimes, though, the

• 100

At the end of 2006 and 2007, the company reports a deferred tax asset for future income tax benefits.

| Deferred Tax Asset | | (\$ in millions) | |
|-----------------------|----|-------------------|---|
| 2006 (\$25 × 40%) | 10 | 2007 (\$15 × 40%) | 6 |
| | | 2008 (\$15 × 40%) | 6 |
| Balance after 3 years | 0 | | |

Income taxes payable in 2007 and 2008 are ~~recognized~~ payable because of the taxes "prepaid" in 2006.

If we continue the assumption of \$8.5 million taxable income in each of 2007 and 2008, income tax (three years) would be recorded this way:

| | | | |
|---|--|----|----|
| 2007 | | | |
| Income tax expense (to balance): | | 30 | |
| Deferred tax asset (\$5 million × 40%) | | | 6 |
| Income tax payable (\$25 million × 40%) | | | 34 |
| 2008 | | | |
| Income tax expense (to balance): | | 40 | |
| Deferred tax asset (\$5 million × 40%) | | | 6 |
| Income tax payable (\$35 million × 40%) | | | 34 |

The deferred tax asset represents the future tax benefit to be received in a company's future years when the financial statements are being audited. The deferred liability also has a basis.

Temporary Differences

| | 2006 | | 2007 | | 2008 | |
|----------------------|------|------|------|------|------|-----|
| Accounting basis | \$0 | \$30 | \$ | \$15 | \$ | \$0 |
| Tax basis | | (0) | | (0) | | (0) |
| Temporary difference | \$30 | | \$15 | | \$0 | |
| Tax rate | 40% | | 40% | | 40% | |
| Deferred tax asset | \$12 | | \$6 | | \$0 | |

A liability is recognized for the reporting periods when the gain is realized and is sold.

2006: **Warr exp** 30
Liability 30
 and reduced when the expense is paid:
 2007: **Liability** 30
Cash 30
 2008: **Liability** 15
Cash 15

There is no comparative difference in this case.

The preceding was an illustration of an estimated expense that is reported on the income statement when incurred but deducted on tax returns in later years when actually paid. A second type of temporary difference that gives rise to a deferred tax asset is a *revenue* that is earned when collected but recognized on income statements in later years when actually paid. Illustration 16-4 demonstrates this second type.

Notice that this temporary difference produces future *deferred* amounts. In 2006, taxable income is \$20 million more than accounting income because it includes the unearned subscription revenue not yet reported in the income statement. However, in 2007 and 2008, taxable income is less than accounting income because the subscription revenue is earned and reported on the income statement but not on the tax returns of those two years.

In effect, tax laws require the company to prepay the income tax on this revenue, which is a sacrifice now but will benefit the company later when it avoids paying the taxes when the revenue is earned. In the meantime, the company has an asset representing this future income tax benefit.

At the end of 2006, the amounts needed to record income tax for 2006 would be determined as shown in Illustration 16-4A.

A deferred tax asset is recognized when an *asset* is reported on the income statement but not on the tax returns.

Illustration 16-4
Revenue Reported on
the Tax Return before
the Income
Statement

At the end of 2006, Tomorrow Publications reports a deferred tax liability of \$20 million. This liability represents the difference between the revenue reported on the tax return and the revenue reported on the income statement.

Tomorrow Publications reported pretax income in 2006, 2007, and 2008 of \$40 million, \$15 million, and \$25 million, respectively. The 2006 income statement does not include \$20 million of magazine subscriptions received in 2006 for one- and two-year subscriptions. The subscription revenue is reported for tax purposes in 2006. The revenue will be earned in 2007 (\$15 million) and 2008 (\$5 million). The income tax rate is 40% each year.

(\$ in millions)

| (\$ in millions) | Temporary Difference | | | Total |
|--|----------------------|----------|-------|-------|
| | Originates | Reverses | | |
| | 2006 | 2007 | 2008 | |
| Accounting income | \$ 80 | \$115 | \$105 | \$300 |
| Subscription revenue on the income statement | | (5) | (5) | (10) |
| Subscription revenue on the tax return | 20 | 0 | 0 | 20 |
| Taxable income | \$100 | \$110 | \$100 | \$310 |

Illustration 16-4A
Determining and
Recording Income
Taxes—2006

(\$ in millions)

| | 2006 | Future Deductible Amounts | | Future Deductible Amount—Total |
|---|--------------|---------------------------|------|--------------------------------|
| | | 2007 | 2008 | |
| Accounting income | \$ 80 | | | |
| Temporary difference: | | | | |
| Subscription revenue | 20 | (\$15) | 5 | \$10 |
| Taxable income | \$100 | | | |
| Enacted tax rate | 40% | | | |
| Tax payable currently | <u>\$ 40</u> | | | |
| Deferred tax asset | | | | \$ 10 |
| | | Deferred Tax Asset | | 10 |
| Fading balance | | | | \$ 10 |
| Less: Beginning balance | | | | (0) |
| Required balance | | | | <u>10</u> |
| Journal Entry at the End of 2006 | | | | |
| Income tax expense (to balance) | | | | 32 |
| Deferred tax asset (determined above) | | | | 10 |
| Income tax payable (determined above) | | | | <u>40</u> |

At the end of 2006 and 2007, the company reports a deferred tax asset for future tax benefits.

At the end of 2006, the company reports a deferred tax asset for future tax benefits of \$10 million. This asset represents the difference between the revenue reported on the tax return and the revenue reported on the income statement.

| Deferred Tax Asset | | (\$ in millions) | |
|-----------------------|---|------------------|---------------------------|
| 2006 $20 \times 40\%$ | 8 | 4 | 2007 $(\$15 \times 40\%)$ |
| | | 2 | 2008 $(\$5 \times 40\%)$ |
| Balance after 3 years | | | |

Again, we could also determine the deferred tax asset as the future tax benefit from the reversal of a temporary difference between the financial statement carrying amount of the subscription liability and its tax basis.¹⁰

| | December 31 | | | | | |
|-------------------------|-------------|------|------|------|------|------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| Liability—subscriptions | | | | | | |
| Accounting basis | \$20 | \$15 | \$10 | \$5 | \$0 | |
| Tax basis | \$20 | \$15 | \$10 | \$5 | \$0 | |
| Temporary difference | \$0 | \$0 | \$0 | \$0 | \$0 | |
| Rate | 40% | 40% | 40% | 40% | 40% | |
| Deferred tax asset | \$0 | \$0 | \$0 | \$0 | \$0 | |

Originating Differences Reversing Differences

Liability—subscriptions for financial reporting purposes is the same as the liability for tax purposes.

2006 Cash 20
2007 Liability 15
2008 Liability 10
2009 Liability 5
2010 Liability 0
From a tax perspective there is no liability.

Valuation Allowance

Deferred tax assets are recognized for all deductible temporary differences. However, a deferred tax asset is then reduced by a valuation allowance if it is "more likely than not" that realization of all of the deferred tax asset will not be realized.¹¹ Remember, a future deductible amount (such as taxable income) also saves taxes on future taxable income to be realized when the proper deduction is available. So a valuation allowance is needed if tax relief is anticipated to be insufficient to realize the tax benefit.

For example, let's say up to the previous year-end management determined that it was more likely than not that all of the deferred tax asset will not ultimately be realized. The deferred tax asset would be reduced by the amount of valuation allowance established.

| | |
|--|-----|
| Income tax expense | \$5 |
| Valuation allowance—deferred tax asset | 5 |

The effect is to increase the income tax expense as a result of reduced expectations of future tax savings. On the 2006 balance sheet, the deferred tax asset would be reported at its estimated net realizable value.

| | |
|--|-----|
| Deferred tax asset | \$5 |
| Less: Valuation allowance—deferred tax asset | 5 |
| | \$0 |

LO3

A valuation allowance is established when it is more likely than not that the deferred tax asset will not be realized.

A deferred tax asset is reported at its estimated net realizable value.

ADDITIONAL CONSIDERATION

The decision as to whether a valuation allowance is needed should be based on the weight of all available evidence. The real question is whether or not there will be sufficient taxable income in future years, or the anticipated tax benefit is to be realized. The benefit of future deductible amounts can be realized only if future income is at least equal to the deferred deductions. After all, a deduction reduces taxes only if it reduces taxable income.

10. Another way to determine the deferred tax asset is to determine the future tax benefit from the reversal of a temporary difference between the financial statement carrying amount of the subscription liability and its tax basis. The future tax benefit is the amount of the deferred tax asset that will be realized when the subscription liability is reversed. The future tax benefit is the amount of the deferred tax asset that will be realized when the subscription liability is reversed.

11. The valuation allowance is established when it is more likely than not that the deferred tax asset will not be realized. The valuation allowance is established when it is more likely than not that the deferred tax asset will not be realized.

12. The valuation allowance is established when it is more likely than not that the deferred tax asset will not be realized. The valuation allowance is established when it is more likely than not that the deferred tax asset will not be realized.

All evidence—both positive and negative—should be considered. For instance, operating losses in recent years or anticipated circumstances that would adversely affect future operations would constitute negative evidence. On the other hand, a strong history of profitable operations or sizable existing contracts would constitute positive evidence of sufficient taxable income—reliable evidence to feature the deferred tax asset.

Managers advocate that management should not eliminate a valuation allowance when deferred tax assets are not otherwise expected to be realized must be considered. These accounting strategies include any prudent and feasible actions management might take to realize a tax benefit while it is available.

This having been said, it should be clear that the decision as to whether or not a valuation allowance is used, is not as simple as how large the allowance should be, rests equally on managerial judgment. Because the decision directly impacts the amount of income tax expense and therefore reported income, it has obvious implications for earnings quality assessment from an analyst's perspective.

At the end of each reporting period, the valuation allowance is reevaluated. The appropriate balance is decided on and the balance is adjusted—up or down—to create that balance. For instance, let's say that at the end of the following year, 2007, available evidence indicates that \$500,000 of the deferred tax asset at the end of 2007 will not be realized. We would adjust the valuation allowance to reflect the indicated amount.

Each period the valuation allowance is reevaluated and adjusted to create that balance.

| | |
|--|-------------|
| Valuation allowance—deferred tax asset (\$3 million - 0.5 million) | 19 million |
| Income tax expense | 2.5 million |

The disclosure note shown in Graph 16-2 accompanied the 2004 annual report of Accent Technologies indicating that none of its deferred tax asset was expected to be realized.

GRAPH 16-2

Valuation Allowance—Accent Technologies

Forming a conclusion that a valuation allowance is not needed is difficult when there is negative evidence such as a history of operating losses in recent years. Management should continue to evaluate the valuation allowance and report on its level or provide a disclosure that the valuation allowance is not needed. The valuation allowance is not needed if it is more likely than not that the deferred tax asset will be realized.

LO4

Nontemporary Differences

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Permanent differences are differences that arise when accounting and tax treatment differ and are not expected to reverse in a later year.

So far, we've dealt with temporary differences between the reported amount of an asset or liability in the financial statements and its tax basis. You learned that temporary differences result in future taxable or deductible amounts when the related asset or liability is recovered or settled. However, some differences are caused by transactions and events that under existing tax law will never affect taxable income or taxes payable. Interest received from investments in bonds issued by state and municipal governments, for instance, is exempt from taxation. Interest revenue of this type is, of course, reported as revenue on the recipient's income statement but not on its tax return—not now, not later. Accounting income exceeds taxable income. This situation will not reverse in a later year. Taxable income in a later year will not exceed accounting income because the tax-free income will never be reported on the tax return.

These permanent differences are disregarded when determining the tax payable (directly), the deferred tax effect, and therefore the income tax expense.¹⁸ This is why we also

¹⁸ The only temporary difference was paid in full in 2004. The difference between the accounting and tax treatment of the interest revenue was not used to compute the deferred tax expense. The difference between the accounting and tax treatment of the interest revenue was not used to compute the deferred tax expense.

PERSPECTIVE

The extent of differences between accounting income and taxable income varies widely from country to country. There also is little uniformity as to how to handle these differences. In some countries, income taxes are not deferred. Instead, tax expense is simply the actual tax paid.

Accounting income in the illustrations that follow to eliminate any permanent differences and taxable income. Graphic 16-3 provides examples of differences with no deferred tax consequences.

- **§ 109(a)**—exemption from investment in bonds issued by state and municipal governments
- **§ 163(j)**—excess interest expense disallowed (in part, a disallowance that is deductible)
- **§ 101(b)**—premiums paid on the death of an insured individual (not deductible)
- **§ 165(e)**—premiums paid for life insurance policies when the payor is the covered party (not deductible)
- **§ 162(m)**—excess compensation payable to some employee stock option plans (not deductible)
- **§ 170(e)(2)(B)**—deductions of charitable contributions not always deductible
- **§ 179**—immediate deductions received from U.S. corporations that are not deductible due to the dividend received by the corporation
- **§ 170(e)(2)(D)**—deductions of natural resource depletion (permanent disallowance of depletion deduction for the income tax expense depletion expense (not deductible))
- **§ 179**—deduction for goodwill amortization over 5 years (goodwill is not amortized for financial reporting purposes)

GRAPHIC 16-3

Differences without Deferred Tax Consequences

Provisions of the tax code that create differences between accounting income and taxable income that are not deductible or not taxable for tax purposes. These differences are permanent differences and do not create deferred tax assets or liabilities.

To compare temporary and nontemporary differences, we can modify Illustration 16-1 to include non-deductible income in Kent Land Management's 2007 pretax accounting income. We do this in Illustration 16-5. Note that the existence of an amount that causes a permanent difference has no effect on income taxes payable, deferred taxes, or income tax expense.

To this point, we've seen that our objective in accounting for income taxes is to recognize the tax consequences of amounts that will become taxable or deductible in future years as a result of transactions or events that already have occurred. To achieve the objective, we record a deferred tax liability or deferred tax asset for future taxable amounts or future deductible amounts that arise as a result of temporary differences. Permanent differences, on the other hand, do not create future taxable amounts and future deductible amounts and therefore have no tax consequences.

You might notice here that because of the permanent difference, Kent's "effective" tax rate is less than its 40% statutory rate. The effective rate is the total tax to be paid (pretax income of \$56 million, divided by accounting income, \$145 million, or 38.6%). Without the 3% non-deductible bond interest, the effective rate would have been \$56 million divided by \$140 million, or 40%. Nondeductible revenues and gains, as we have for Kent, cause the effective rate to be *lower* than the statutory rate; whereas, nondeductible expenses and losses cause the effective rate to be *higher* than the statutory rate. Companies report a comparison of their effective and statutory tax rates in disclosure notes, as in Graphic 16-4's example from FedEx's 2004 financial statements.

FedEx Corporation

| | |
|---|--|
| 1. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$145 million) equals 38.6%. | 2. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$140 million) equals 40%. |
| 3. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$145 million) equals 38.6%. | 4. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$140 million) equals 40%. |
| 5. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$145 million) equals 38.6%. | 6. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$140 million) equals 40%. |
| 7. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$145 million) equals 38.6%. | 8. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$140 million) equals 40%. |
| 9. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$145 million) equals 38.6%. | 10. The effective tax rate is calculated as follows: (pretax accounting income of \$56 million) divided by (taxable income of \$140 million) equals 40%. |

ILLUSTRATION 16-5 Temporary and Permanent Differences

But since interest on municipal bonds is tax exempt, the tax effect of the difference is zero. This difference, a permanent difference, will never be reversed.

Kent Land Management reported pretax income in 2006 of \$100 million except for additions income of \$40 million from installment sales of property and \$5 million interest from bonds in municipal bonds in 2006. The installment sales income is reported for tax purposes in 2007 (\$10 million) and 2008 (\$30 million). The enacted tax rate is 40% each year.

(\$ in millions)

| | Current
Year
2006 | Future Taxable
Amounts | | Future Taxable
Amounts
(Total) |
|-----------------------------|-------------------------|-------------------------------|------|--------------------------------------|
| | | 2007 | 2008 | |
| Accounting income | \$100 | | | |
| Permanent difference: | | | | |
| Interest on municipal bonds | (5) | | | |
| Temporary difference: | | | | |
| Installment income | (4) | \$10 | \$30 | \$40 |
| Taxable income | \$100 | | | |
| Enacted tax rate | 40% | | | 40% |
| Tax payable currently | <u>\$40</u> | | | |
| Deferred tax liability | | | | \$16 |
| | | Deferred Tax Liability | | |
| Ending balance | | | | \$16 |
| Less: Beginning balance | | | | 0 |
| Change in balance | | | | \$16 |

Journal Entry at the End of 2006

| | | | |
|------------------------|------------------|----|----|
| Income tax expense | balance | 40 | |
| Income tax payable | determined above | | 40 |
| Deferred tax liability | determined above | | 16 |

GRAPHIC 16-4 Effective Tax Rate— FedEx Corporation

Note 9: Income Taxes (in part)

A reconciliation of the statutory federal income tax rate to FedEx's effective income tax rate for the years ended May 31 is as follows:

| | 2004 | 2003 | 2002 |
|--|-------|-------|-------|
| Statutory U.S. income tax rate | 35.0% | 35.0% | 35.0% |
| Differences resulting from: | | | |
| State income taxes net of federal benefits | 2.3 | 2.6 | 2.4 |
| Other, net | 10.8 | 6.4 | 0.0 |
| Effective tax rate | 48.1% | 44.0% | 37.4% |

— CONCEPT REVIEW EXERCISE —

TEMPORARY AND PERMANENT DIFFERENCES

Mid-South Cellular Systems began operations in 2006. That year the company reported tax accounting income of \$70 million, which included the following amounts:

- Compensation expense of \$3 million related to employee stock option plans granted and organized was reported on the 2006 income statement. This expense is not deductible for tax purposes.
- An asset with a four-year useful life was acquired last year. It is depreciated by the straight-line method on the income statement. MACRS is used on the tax return, causing deductions for depreciation to be more than straight-line depreciation the first two years but less than straight-line depreciation the next two years (\$3 million).

| | Depreciation | | Difference |
|------|------------------|--------------|-------------|
| | Income Statement | Tax Return | |
| 2006 | \$150 | \$198 | \$ 48 |
| 2007 | 150 | 264 | 114 |
| 2008 | 150 | 90 | (60) |
| 2009 | 150 | 48 | 102 |
| | <u>\$600</u> | <u>\$600</u> | <u>\$ 0</u> |

The enacted tax rate is 40%.

Prepare the journal entry to record Mid-South's deferred income taxes for 2006.

(In millions)

| | Current
Year
2006 | Future Taxable
Amounts | | | Future Taxable
Amounts
(Total) |
|------------------------|-------------------------|---------------------------|------|-------|--------------------------------------|
| | | 2007 | 2008 | 2009 | |
| Accounting income | \$70 | | | | |
| Permanent differences | | | | | |
| Compensation expense | 3 | | | | |
| Temporary differences | | | | | |
| Depreciation | (48) | \$(114) | \$60 | \$102 | \$ 48 |
| Taxable income | \$25 | | | | |
| Enacted tax rate | 40% | | | | 40% |
| Tax payable | \$ 0 | | | | |
| Deferred tax liability | | | | | \$19.2 |
| | | Deferred Tax Liability | | | \$ |
| Ending balance | | | | | \$19.2 |
| 100% Beginning balance | | | | | 0.0 |
| Change in balance | | | | | <u>\$19.2</u> |

Journal Entry at the End of 2006

| | | |
|---|------|------|
| Income tax expense (to balance) | 29.2 | |
| Income tax payable (determined above) | | 0.0 |
| Deferred tax liability (determined above) | | 29.2 |

SOLUTION

Because the company's tax rate is 40%, the deferred tax liability is calculated as follows:

The deferred tax liability is calculated as follows:

OTHER TAX ACCOUNTING ISSUES

PART B

Tax Rate Considerations

To measure the deferred tax liability or asset, we multiply the temporary difference by the currently enacted tax rate that will be effective in the year(s) the temporary difference reverses.¹⁶ We do not base calculations on anticipated legislation that would alter the current tax rate. A conceptual case can be made that expected rate changes should be anticipated when measuring the deferred tax liability or asset. However, this is one of many examples of the frequent trade-off between relevance and reliability. In this case, the FASB chose to favor reliability by waiting until an anticipated change actually is enacted into law before recognizing its tax consequences.

LO5

¹⁶ If the enacted tax rate is 21% in 2018 and 25% in 2019, the deferred tax liability is calculated using the 25% rate. We use 25% in the following calculations.

¹⁷ Most assets are expected to

A deferred tax liability is measured based on enacted tax rates and rates.

WHEN ENACTED TAX RATES DIFFER

Existing tax laws may call for enacted tax rates to be different in two or more future years in which a temporary difference is expected to reverse. When a phased-in change in rate is scheduled to occur, the specific tax rates of each future year are multiplied by the amount reversing in each of those years. The total is the deferred tax liability or asset.

To illustrate, let's again modify our Keni Land Management illustration, this time to assume a scheduled change in tax rates. See Illustration 16-6.

ILLUSTRATION 16-6

Scheduled Change in Tax Rates

Keni Land Management reported pretax income in 2006 of \$100 million except for accounting income of \$40 million from installment sales of property and \$5 million interest from investments in municipal bonds in 2006. The installment sales income is reported for tax purposes in 2007 (\$10 million) and 2008 (\$30 million). The enacted tax rates are 40% for 2006 and 2007 and 35% for 2008.

(\$ in millions)

| | Current Year
2006 | Future Taxable Amounts | | Totals |
|-------------------------------|----------------------|------------------------|--------|---------------|
| | | 2007 | 2008 | |
| Accounting income | \$14 | | | |
| Permanent differences: | | | | |
| Municipal bond interest | 0 | | | |
| Temporary differences: | | | | |
| Installment income | 0 | \$10 | \$30 | |
| Taxable income | \$14 | | | |
| Enacted tax rate | | 40% | 35% | |
| Tax payable currently | \$ | | | |
| Deferred tax liability | | \$4 | \$10.5 | \$14.5 |
| Deferred Tax Liability | | | | \$ |
| Ending balance | | | | \$14.5 |
| Less: Beginning balance | | | | 0.0 |
| Change in balance | | | | <u>\$14.5</u> |

Journal Entry at the End of 2006

| | | |
|--|------|------|
| Debitive tax expense (in balance) | 54.5 | |
| Inclusive tax payable (determined at 40%) | | 0 |
| Deferred tax liability (determined at 35%) | | 14.5 |

Be sure to note that the 2007 rate (40%), as well as the 2008 rate (35%), already is in effect under law as of 2006 when the deferred tax liability is established. In the next section we discuss how to handle a change resulting from new legislation.

CHANGES IN TAX LAWS OR RATES

Tax laws sometimes change. If a change in a tax law or rate occurs, the deferred tax liability or asset must be adjusted. Remember the deferred tax liability or asset is meant to reflect the amount to be paid or recovered in the future. When legislation changes that amount, the deferred tax liability or asset also should change. The effect is reflected in operating income in the year of the enactment of the change in the tax law or rate.

As a result of a change in tax law or rate, deferred tax consequences may increase or decrease.¹⁴

in clarification, reconsider the previous illustration. Without a change in tax rates and assuming that accounting income in 2007 is \$30 million (with no additional temporary or permanent differences), the 2007 income tax amounts would be determined as shown in Illustration 16-6A.

| In millions | | Current Year
2007 | Future Taxable
Amount
2008 | Illustration 16-6A
Reversal of
Temporary Difference
with a Tax Rate
Change |
|---|------|----------------------|----------------------------------|--|
| | 2006 | | | |
| Accounting income | | \$ 30 | | |
| Temporary differences: | | | | |
| Installation income | (40) | 10 | \$30 | |
| Taxable income | | \$40 | | |
| Enacted tax rate | | 40% | 35% | The 40% 2007 rate and the 35% 2008 rate are established by previously enacted legislation. |
| Tax payable currently | | <u>\$ 16</u> | | |
| Deferred tax liability | | | \$10.5 | \$10.5 |
| | | | Deferred Tax Liability | |
| | | | | ↓ |
| Ending balance | | | | \$10.5 |
| Less: Beginning balance | | | | (4.5) |
| Change in balance | | | | \$ 6.0 |
| Journal Entry at the End of 2007 | | | | |
| Income tax expense (to balance) | | | 40 | |
| Deferred tax liability (determined above) | | | 4 | |
| Income tax payable (determined above) | | | | 44 |

Now assume Congress passed a new tax law in 2007 that will change the 2008 tax rate to 35% instead of the previously scheduled 35% rate. Because a deferred tax liability was established in 2006 with the expectation that the 2008 taxable amount would be taxed at 35%, it would now be adjusted to reflect taxation at 30% instead. This is demonstrated in Illustration 16-6B.

| In millions | | Current Year
2007 | Future Taxable
Amount
2008 | Illustration 16-6B
Reversal of
Temporary Difference
with a Tax Rate
Change |
|---|------|----------------------|----------------------------------|---|
| | 2006 | | | |
| Accounting income | | \$100 | | |
| Temporary differences: | | | | |
| Installation income | (40) | 10 | \$30 | |
| Taxable income | | \$110 | | |
| Enacted tax rate | | 40% | 35% | The deferred tax liability would have been \$ 9.5 million (30 million × 35%) if the tax rate had not changed. |
| Tax payable currently | | <u>\$ 44</u> | | |
| Deferred tax liability | | | \$ 9 | \$ 9.0 |
| | | | Deferred Tax Liability | |
| | | | | ↓ |
| Ending balance | | | | \$ 9.0 |
| Less: Beginning balance | | | | (4.5) |
| Change in balance | | | | \$ 4.5 |
| Journal Entry at the End of 2007 | | | | |
| Income tax expense (to balance) | | | 38.5 | |
| Deferred tax liability (determined above) | | | 5.5 | |
| Income tax payable (determined above) | | | | 44.0 |

When a tax rate changes, however, the tax liability balance should be adjusted with the rate.

Also, the operating income is changed by the change.

Notice that the methods used to determine the deferred tax liability and the change in its balance are the same as without the rate change—the calculation merely uses the new rate (30%) rather than the old rate (35%). So recalculating the desired balance in the deferred tax liability each period and comparing that amount with any previously existing balance automatically takes into account tax rate changes.

Also notice that the income tax expense (\$38.5 million) is \$1.5 million less than it would have been without the tax rate change (\$40 million). The effect of the change is to reduce income tax expense. In fact, this is highlighted if we separate the previous entry into its component parts: (1) record the income tax expense without the tax rate change and (2) separately record the adjustment of the deferred tax liability for the change.

Journal Entries at the End of 2007

| | | | \$ in millions |
|--|--|--|----------------|
| Income tax expense | | | 40 |
| Deferred tax liability | | | 4 |
| Income tax payable | | | 44 |
| Deferred tax liability (\$40 million ÷ 75 = 30%) | | | 5 |
| Income tax expense | | | 5 |

The tax consequence of a change in a tax law or rate is recognized in the period the change is enacted. In this case, the consequence of a lower tax rate is a reduced deferred tax liability, recognized as a reduction in income tax expense in 2007 when the change occurs.

Multiple Temporary Differences

- **LO 4** It would be unusual for any but a very small company to have only a single temporary difference in any given year. Having multiple temporary differences, though, doesn't change any of the principles you've learned so far in connection with single differences. All that is necessary is to categorize all temporary differences according to whether they create (a) future taxable amounts or (b) future deductible amounts. The total of the future taxable amounts is multiplied by the future tax rate to determine the appropriate balance for the deferred tax liability, and the total of the future deductible amounts is multiplied by the future tax rate to determine the appropriate balance for the deferred tax asset. This is demonstrated in Illustration 16-7.

Look at Illustration 16-7A on page 794 to see how Eli Wallace determines the income tax amounts for 2006. Then turn to Illustration 16-7B on page 795 to see how these amounts are determined for 2007.

After the journal entry at the end of 2007, the balances of both the deferred tax asset and the deferred tax liability reflect the desired amounts as follows (\$ in millions):

The deferred tax asset balance and the deferred tax liability increases during 2007.

Deferred Tax Asset

| | |
|-----|--------------|
| 2.5 | |
| 1.2 | 2006 balance |
| 1.3 | Adjustment |
| 1.6 | 2007 balance |

Deferred Tax Liability

| |
|------|
| 18.0 |
| 1.2 |
| 19.2 |

Of course, if a phased-in change in rates is scheduled to occur, it would be necessary to determine the total of the future taxable amounts and the total of the future deductible amounts for each future year as outlined previously. Then the specific tax rates of each future year would be multiplied by the two totals in each of those years. Those annual amounts would then be summed to get the deferred tax liability and the deferred tax asset.

2006

in 2006 in this year of operations. E-Vekara Distributors reported pretax accounting income of \$200 million which included the following amounts:

the new installation cost of \$200 million, of which \$100 million will be reported for tax purposes in 2007 (\$5 million) and 2008 (\$4 million).

Depreciation is reported by the straight-line method on an asset with a four-year useful life. In the case at hand, future depreciation will be less than that straight-line depreciation for the first two years but will be higher in the next two years as follows:

| | Income Statement | Tax Return | Difference |
|------|------------------|------------|------------|
| 2006 | \$ 50 | \$ 66 | \$16 |
| 2007 | 50 | 88 | (38) |
| 2008 | 50 | 30 | 20 |
| 2009 | 50 | 16 | 34 |
| | \$200 | \$200 | \$ 0 |

Estimated warranty expense that will be deductible on the tax return when actually paid during the next two years. Estimated deductions are as follows (\$ in millions):

| | Income Statement | Tax Return | Difference |
|------|------------------|------------|------------|
| 2006 | \$2 | | \$2 |
| 2007 | | \$4 | (4) |
| 2008 | | 3 | (3) |
| | \$2 | \$7 | \$0 |

2007

During 2007, pretax accounting income of \$200 million includes an estimated loss of \$1 million resulting from a loss contingency. This loss is expected to be paid in 2007 or which will be taxable income.

The enacted tax rate is 40% each year.

Illustration 16-7 Multiple Temporary Differences

Net Operating Losses

A net operating loss is negative taxable income. Tax-deductible expenses exceed taxable income. Of course, there is no tax payable for the year an operating loss occurs because there is no taxable income. In addition, tax laws permit the operating loss to be used to reduce taxable income in other profitable years. Offsetting operating profits with operating losses achieved by either a carryback of the loss to prior years or carryforward of the loss or combination of both. If taxable deductions exceed taxable income, the deductible loss year may be used to reduce taxable income in other years. Specifically, the operating loss can be carried back 2 years and forward for up to 20 years.

LO7

Carryforward — Up to 20 Years

| | | | | | | | | |
|------|------|------|------|------|------|------|------|------|
| 2004 | 2005 | LOSS | 2007 | 2008 | 2009 | 2010 | 2015 | 2026 |
|------|------|------|------|------|------|------|------|------|

2 years — Carryback

Tax laws permit a choice. A company can elect an operating loss carryback if taxable income was reported in either of the two previous years. By receiving taxable income of a previous year, the company can receive an immediate refund of taxes paid that year.

If taxable income was not reported in either of the two previous years or higher tax rates are anticipated in the future, a company might elect to forgo the operating loss carryback and carry the loss forward for up to 20 years to offset taxable income of those years. Even if a carryback is elected, any loss that remains after the two-year carryback can be carried forward. The carryback election is a choice that must be made in the year of the operating loss and the choice is irrevocable. It usually is advantageous to carry back losses because by

ILLUSTRATION 16-7A
Multiple Temporary
Differences—2006

Temporary differences are grouped according to whether they create future taxable amounts or future deductible amounts.

The desired balances in the deferred tax liability and the deferred tax asset are separately determined.

Income tax expense is composed of three components: the tax payable in 2006, the tax deferred until later, reflected by the deferred tax benefit.

(\$ in millions)

| | Current
Year
2006 | Future Taxable
Deductible Amounts | | | Future
Taxable
Amounts
(total) | Future
Deductible
Amounts
(total) |
|---|-------------------------|--------------------------------------|------|-------|---|--|
| | | 2007 | 2008 | 2009 | | |
| Accounting income | \$ 200 | | | | | |
| Temporary differences | | | | | | |
| Installment sales | (9) | \$ 5 | \$ 4 | | \$ 9 | |
| Depreciation | (16) | 38 | 20 | \$ 34 | 16 | |
| Warranty expense | 7 | (4) | (3) | | | \$ 7 |
| Taxable income | \$ 182 | | | | \$ 25 | (7) |
| Enacted tax rate | 40% | | | | 40% | 40% |
| Tax payable currently | \$ 72.8 | | | | | |
| Deferred tax liability | | | | | \$ 10 | |
| Deferred tax asset | | | | | 7 | \$ 2.8 |
| | | | | | Deferred
Tax
Liability | Deferred
Tax
Asset |
| Ending balances: | | | | | \$ 10 | \$ 2.8 |
| Less: Beginning balances: | | | | | 0 | (0.0) |
| Change in balances | | | | | \$ 10 | \$ 2.8 |
| Journal Entry at the End of 2006 | | | | | | |
| Income tax expense (balance) | | | | | Dr 10 | |
| Deferred tax asset (decreased amount) | | | | | | Cr 2.8 |
| Deferred tax liability (determined above) | | | | | | |
| Income tax payable (determined above) | | | | | | |

Filing an amended tax return to get a refund, a company can realize the benefit much more than if the loss is carried forward.

The accounting question is: When should the tax benefit created by an operating loss be recognized on the income statement? The answer is: In the year the loss occurs.

OPERATING LOSS CARRYFORWARD

First consider a loss carryforward. You have learned in this chapter that a deferred tax asset is recognized for the future tax benefit of temporary differences that create future deductible amounts. An operating loss carryforward also creates future deductible amounts. Likewise, then, a deferred tax asset is recognized for an operating loss carryforward, also. This is demonstrated on the next page in Illustration 16-8.

The income tax benefit of an operating loss carryforward is recognized for accounting purposes in the year the operating loss occurs. The net after-tax operating loss reflects future tax savings that the operating loss is expected to create.

The income tax benefit of an operating loss carryforward is recognized in the year the operating loss occurs.

Income Statement (partial)

| | (\$ in millions) |
|---|------------------|
| Operating loss before income taxes | \$ 25 |
| Less: Income tax benefit—operating loss | (2) |
| Net operating loss | \$ 23 |

Valuation Allowance. Just as for any deductible temporary differences, deferred tax assets are recognized for any operating loss without regard to the likelihood of having sufficient income in future years sufficient to absorb future deductible amounts. However, the deferred tax asset is then reduced by a valuation allowance if it is more likely than not that the

(in millions)

| | | Current
Year
2007 | Future Taxable
(Deductible)
Amounts | | Future
Taxable
Amounts
(total)* | Future
Deductible
Amounts
(total)* |
|-------------------------|-------|-------------------------|---|------|--|---|
| | 2006 | | 2008 | 2009 | | |
| Accounting income | | \$200 | | | | |
| Temporary differences: | | | | | | |
| Installation sales | \$ 41 | \$ 5 | \$ 4 | | \$ 9 | |
| Depreciation | 161 | 381 | 20 | \$34 | 54 | |
| Warranty expense | 7 | 16 | 3 | | | \$30 |
| Estimated loss | | | | | | 1 |
| Taxable income | | \$164 | | | \$58 | \$41 |
| Enacted tax rate | | 40% | | | 40% | 40% |
| Tax payable currently | | \$ 65.6 | | | | |
| Deferred tax liability | | | | | \$23.2 | |
| Deferred tax asset | | | | | | \$17.0 |
| | | | | | ↓ | ↓ |
| | | | | | Deferred
Tax Liability | Deferred
Tax Asset |
| Ending balances: | | | | | \$23.2 | \$ 6 |
| Plus Beginning balances | | | | | 14.0 | 2.81 |
| Change in balances | | | | | \$13.2 | \$ 21 |

Journal Entry at the End of 2007

| | |
|---|------|
| Income tax expense (to balance) | 80.0 |
| Deferred tax asset (determined above) | 12 |
| Deferred tax liability (determined above) | 32 |
| Income tax payable (determined above) | 65.6 |

* See above and Illustration 16-3. Data are equal to the amounts determined by the following calculations:

During 2006, the first year of operations, American Landscaping Co. reported an operating loss of \$125 million for financial reporting and tax purposes. The enacted tax rate is 40%.

(in millions)

| | Current Year
2006 | Future Deductible
Amounts
(total) |
|------------------------|----------------------|---|
| Operating loss | \$125 | |
| Loss carryforward | 125 | \$125 |
| | \$ 0 | |
| Enacted tax rate | 40% | 40% |
| Tax payable | \$ 0 | |
| Deferred tax asset | | \$ 50 |
| | | ↓ |
| | | Deferred Tax Asset |
| Ending balance | | \$50 |
| Less Beginning balance | | 0 |
| Change in balance | | \$50 |

Journal Entry at the End of 2006

| | |
|---------------------------------------|----|
| Deferred tax asset (determined above) | 50 |
|---------------------------------------|----|

ILLUSTRATION 16-7B

Multiple Temporary Differences—2007

The future taxable amount of the installment sales \$9 million is equal to the sum of the temporary differences of \$5 million and \$4 million.

Similarly, the future deductible amount of the warranty expense and estimated loss is \$31 million, the sum of the deductible amounts of \$30 million and \$1 million.

Analysis indicates that the net deferred tax liability of \$6 million should be recorded.

ILLUSTRATION 16-3

Operating Loss Carryforward

An operating loss can offset future taxable income. If no taxable income in future years.

The tax benefit of having a net deferred tax asset in a year with no taxable income is lost.

portion of all of the deferred tax asset will not be realized. Remember, a valuation allowance both reduces the net deferred tax asset and increases the income tax expense just as if the portion of the deferred tax asset had not been recognized.

OPERATING LOSS CARRYBACK

To compare the treatment of an operating loss carryback, let's modify the illustration in a sense that there was taxable income in the two years prior to the operating loss and the American Laminating elected a loss carryback (see Illustration 16-9). Note that the operating loss must be applied to the earlier year first and then brought forward to the next year. If any of the loss remains after reducing taxable income to zero in the two previous years, the remainder is carried forward to future years as an operating loss carryforward.

An operating loss must be applied to the two years prior to the loss to determine a tax benefit.

ILLUSTRATION 16-9

Operating Loss Carryback and Carryforward

An operating loss must be applied to the two years prior to the loss to determine a tax benefit. If any of the loss remains after reducing taxable income to zero in the two previous years, the remainder is carried forward to future years as an operating loss carryforward.

The portion of an operating loss that remains after the loss is applied to the two years prior to the loss is carried forward to future years as an operating loss carryforward.

The income tax benefit of both an operating loss carryback and an operating loss carryforward is recognized for accounting purposes in the year the operating loss occurs. The after-tax operating loss reflects the reduction of past taxes from the loss carryback and future tax savings that the loss carryforward is expected to create.

During 2006, American Laminating Corporation reported an operating loss of \$125 million for financial reporting and tax purposes. The enacted tax rate is 40% for 2006. Taxable income, tax rates, and income taxes paid in the two previous years were as follows:

| | Taxable Income | Taxable Rates | Income Taxes Paid |
|------|----------------|---------------|-------------------|
| 2004 | \$20 million | 35% | \$ 7 million |
| 2005 | \$5 million | 40% | 2 million |

Here's how the income tax benefit of the operating loss carryback and the operating loss carryforward is determined:

\$6 million.

| | Prior Years | | Current Year | Future Deductible |
|---------------------------|-------------|------|--------------|-------------------|
| | 2004 | 2005 | 2006 | Amounts |
| | | | | (Total) |
| Operating loss | | | \$125 | |
| Loss carryback | \$120 | \$5 | 75 | |
| Loss carryforward | | | 50 | (\$50) |
| | | | \$ 0 | |
| Enacted tax rate | 35% | 40% | 40% | 40% |
| Tax payable (refundable) | \$ 7 | \$ 2 | \$ 0 | |
| Deferred tax asset | | | | \$20 |
| Deferred Tax Asset | | | | ↓ |
| Ending balance | | | | \$ 20 |
| Less: Beginning balance | | | | 0 |
| Change in balance | | | | <u>\$ 20</u> |

Journal Entry at the End of 2006

| | | |
|--|----|----|
| Receivable—income tax refund (\$7 - \$2) | 29 | |
| Deferred tax asset (determined above) | 20 | |
| Income tax benefit—operating loss (to balance) | | 49 |

The income tax benefit of both an operating loss carryback and an operating loss carryforward is recognized for accounting purposes in the year the operating loss occurs. The after-tax operating loss reflects the reduction of past taxes from the loss carryback and future tax savings that the loss carryforward is expected to create.

| | (\$ millions) | |
|---|---------------|--------------|
| Operating loss before income taxes | | \$125 |
| Less: Income tax benefit | | |
| Tax refund from loss carryback | \$29 | |
| Future tax savings from loss carryforward | 20 | 49 |
| Net operating loss | | <u>\$ 76</u> |

Notice that the income tax benefit (\$49 million) is less than it was when we adjusted a carryforward only \$50 million. This is because the tax rate one or two carryback years old was lower than the carry forward rate 40%.

Let's carry the illustration forward one year (see Illustration 16-9A) and assume a performance turnaround in 2007 resulted in pretax accounting income of \$2.5 million.

| (\$ in millions) | | Future Deductible Amounts (total) | | ILLUSTRATION 16-9A
Determining and Recording Income Taxes—2007 |
|---|-------------------|-----------------------------------|----------|---|
| 2006 | Current Year 2007 | | | |
| Accounting income | \$ 5 | | | \$ 5 million of the carryback is now used in 2007 to bring the tax rate down to 30%. The tax benefit is \$ 1.5 million (5 × 30%) and the carryback is \$ 3.5 million. |
| Temporary difference—loss carryforward | \$50 | (15) | \$ 35 | |
| Taxable income | \$ 0 | | | |
| Enacted tax rate | 40% | 40% | | |
| Tax payable currently | \$ 0 | | | The \$20 million carried over is now used to bring the rate down to 30%. |
| Deferred tax asset | | | \$ 14 | |
| Deferred Tax Asset ending balance | | | \$ 14.0 | |
| Less Beginning balance | | | (20.0) | |
| Change in balance | | | \$ (6.0) | |
| Journal Entry at the End of 2007 | | | | |
| Income tax expense (to balance) | | | 6 | |
| Deferred tax asset (to record decrease) | | | | |

Financial Statement Presentation

BALANCE SHEET CLASSIFICATION

In a classified balance sheet, deferred tax assets and deferred tax liabilities are classified as **noncurrent** or **current** according to how the related assets or liabilities are classified for financial reporting. For instance, a deferred tax liability arising from a temporary difference used for tax and book purposes would be classified as **noncurrent** because the related asset or liability is noncurrent. A deferred tax asset or deferred tax liability is classified as **current** if it is associated with a liability or asset classified as **current** in ending noncurrent assets and liabilities will cause the temporary difference to reverse within companies will have several different types of temporary differences that give rise to current tax liabilities. The several deferred tax assets and liabilities should be reported separately but combined into two summary amounts: current deferred tax assets and current deferred tax liabilities. The resulting current deferred tax assets or liabilities should be reported as a **current asset** or **current liability**. Similarly, a single net current amount should be reported as a **current asset** or a **current liability**. This is demonstrated in Illustration 16-10.

Deferred Tax Amount Not Related to a Specific Asset or Liability. Sometimes, a deferred tax asset or a deferred tax liability cannot be identified with a specific asset or liability.

When that's the case, it should be classified according to when the underlying temporary difference is expected to reverse. For instance, some organizational costs are recognized as an expense for financial reporting purposes when incurred, but are deductible for tax purposes in later years. When such expenditures are made, an expense is recognized, but no asset or liability is recognized on the balance sheet. The deferred tax asset is recognized for the future tax benefit and is classified as a **current asset** for the tax effect of the deduction expected in later years, and as a **noncurrent asset** for the tax effect of the deductions expected in later years.

LO8

A not current amount and a so-called current amount are reported as current assets or a liability.

A current asset or liability is a current asset or liability. The current asset or liability is a current asset or liability. The current asset or liability is a current asset or liability.

ILLUSTRATION 16-10 Balance Sheet Classification and Presentation

The amount of
the valuation allow-
ance is determined
to recognize losses
that are expected
to be realized in
the future periods.

Warren Properties Inc. had future asset amounts and future deductible amounts relating to temporary differences between the tax bases of the assets and liabilities indicated below and their financial reporting amounts.

| Related Balance Sheet Account | Classification
Amount A
Noncurrent—N | \$ millions | | |
|-------------------------------------|--|--|-------------|---|
| | | Future
Taxable
(Deductible)
Amounts | Tax
Rate | Deferred
Tax (Asset)
Liability
(L/N) |
| Receivable—installment sales of and | | \$ 10 | 40% | \$ 4 |
| Receivable—installment sales of and | N | 5 | 40% | \$ 2 |
| Debt—taxable assets | N | 105 | 40% | 42 |
| Allowance—uncollectible accounts | | (15) | 40% | 6 |
| Liability—subscriptions received | | (20) | 40% | 8 |
| Estimated warranty liability | | (30) | 40% | 12 |
| Net current liability asset: | | | | \$ 10 |
| Net noncurrent liability asset: | | | | \$ 48 |
| Balance Sheet Presentation | | | | |
| Current Assets | | | | |
| Deferred tax asset | 2 | | | |
| Long-term liabilities | | | | |
| Deferred tax liability | \$ 48 | | | |

Note: Before offsetting assets and liabilities within the current and noncurrent categories, the total of deferred tax asset, \$26 (\$4 + \$22), and the total of deferred tax liability, \$48 (\$12 + \$36), is \$22 (\$48 - \$26).

Operating loss carryforwards also are unrelated to a specific asset or liability and so are classified as current or noncurrent according to when future income is expected to be sufficient to realize the benefit of the carryforward.

A valuation allowance is shown as a contra-asset account and noncurrent on a balance sheet.

Valuation Allowance. Any valuation allowance for deferred tax assets should be calculated between the current and noncurrent amount in proportion to the amounts of deferred tax assets that are classified as current and noncurrent. In our Illustration, all three deferred tax assets were classified as current, so any valuation allowance would be reported with the net current deferred tax asset.

DISCLOSURE NOTES

Deferred Tax Assets and Deferred Tax Liabilities. Additional disclosures are required pertaining to amounts reported on the balance sheet. Disclosure notes should include:

- Total of all deferred tax liabilities (\$48 million in our Illustration 16-10 Note).
- Total of all deferred tax assets (\$26 million in our Illustration 16-10 Note).
- Total valuation allowance recognized for deferred tax assets.
- Net change in the valuation allowance.
- Approximate tax effect of each type of temporary difference (and carryforward).

In its 2004 balance sheet, the **Wal-Mart Stores, Inc.** reported net noncurrent deferred tax liabilities of \$456 million. The composition of this amount was provided in the disclosure note shown in Graphic 6-5.

Operating Loss Carryforwards. In addition, the amounts and expiration dates should be revealed for any operating loss carryforwards. Remember, operating losses can be carried forward for reduction of future taxable income for 20 years. This potential tax benefit is a foreseeable deductible cash savings for the company if earnings sufficient to absorb the loss

Note 11 Income Taxes (in part)

Assets (liabilities) are as follows at December 31

| | 2004 | 2003 |
|---------------------------------------|---------|----------|
| Deferred Taxes—Current: | | |
| Accrued liabilities | \$ 3 | \$ 76.7 |
| Other net | 4.9 | 59.7 |
| Total deferred taxes—current | 7.9 | 136.4 |
| Deferred Taxes—Long-Term: | | |
| Intangible assets | (2,310) | (231.1) |
| Property, plant, and equipment | (266.9) | (280.4) |
| Tax loss and tax credit carryforwards | 1,166 | 166.2 |
| Other net | 2.5 | 9 |
| Valuation allowance | (1,148) | (111.6) |
| Total deferred taxes—long-term | 5.6 | 65.0 |
| Net deferred taxes | \$ 13.5 | \$ 201.4 |

GRAPHIC 16-5

Disclosure of Deferred Taxes—Colgate Palmolive Co.

carryforward) and anticipated before their expiration date. The presence of large operating loss carryforwards also can make an unprofitable company an attractive target for acquisition by a company that could use those loss carryforwards to shelter its own earnings from tax with that loss deduction. If the IRS determines that an acquisition is made solely to obtain the tax benefits of operating loss carryforwards, the deductions will not be allowed. Because motivation is difficult to determine, so it is not uncommon for companies to purchase operating loss carryforwards.

Income Tax Expense. Disclosures also are required pertaining to the income tax expense reported on the income statement. Disclosure notes should reveal the

- Current portion of the tax expense (or tax benefit).
- Deferred portion of the tax expense (or tax benefit), with separate disclosure of amounts attributable to:
 - Portion that does not include the effect of the following, separately disclosed amounts:
 - Operating loss carryforwards
 - Adjustments due to changes in tax laws or rates
 - Adjustments to the beginning-of-the-year valuation allowance due to revised estimates
 - Tax credits

Intraperiod Tax Allocation

You should recall that an income statement reports certain items separately from income (or loss) from continuing operations when such items are proven “specifically, material, and unusual” and “(b) extraordinary items are given a place of their own on the income statement to better allow the user of the statement to isolate irregular components of net income from those that represent ordinary, recurring business operations. Presumably, this permits the user to more accurately project future operations without neglecting events that affect annual performance.”¹⁶ Following this logic, each component of net income should reflect its income tax effect directly associated with that component.

LO9

Consequently, the total income tax expense for a reporting period should be allocated among the income statement items that gave rise to it. Each of the following items should be reported net of its respective income tax effects:

- Income (or loss), from continuing operations
- Income from operations
- Extraordinary items

A related tax effect can be either a tax expense or a tax benefit. For example, an extraordinary gain attributable to a company's tax expense when an extraordinary loss produces a tax benefit. In the above example, a \$10 million gain before taxes reduces income taxes \$4 million. With a tax rate of 40% would report a \$10 million pretax income that included a \$10 million extraordinary gain this way:

A gain results in a tax benefit.

| | (\$ in millions) |
|---|------------------|
| Income before tax and extraordinary item (\$100 + 10) | \$90 |
| Less: Income tax expense (\$90 × 40%) | (36) |
| Income before extraordinary item | \$54 |
| Extraordinary gain (net of \$4 income tax) | 6 |
| Net income | \$60 |

If the \$10 million pretax income included a \$10 million extraordinary loss rather than an extraordinary gain, the loss would be reported net of associated tax savings:

A loss results in a tax benefit.

| | (\$ in millions) |
|---|------------------|
| Income before tax and extraordinary item (\$100 + 10) | \$110 |
| Less: Income tax expense (\$110 × 40%) | (44) |
| Income before extraordinary item | \$66 |
| Extraordinary loss (net of \$4 income tax benefit) | (6) |
| Net income | \$60 |

ADDITIONAL CONSIDERATION

If the extraordinary gain in the earlier example had been of a type taxable at a capital gains tax rate of 30%, it would have been reported net of the specific tax associated with that gain:

Extraordinary gain (net of \$3 income tax) \$7

Allocating income taxes with the gain or loss reporting period is interperiod tax allocation.

Allocating income taxes among financial statement components in this way within a particular reporting period is referred to as *interperiod tax allocation*. You should recognize in contrast with *interperiod tax allocation*—terminology sometimes used to describe allocating income taxes between two or more reporting periods by recognizing deferred tax assets and liabilities. While interperiod tax allocation is challenging and controversial, intraperiod allocation is relatively straightforward and substantially free from controversy.

Conceptual Concerns

Some accountants disagree with the FASB's approach to accounting for income taxes. Some of the most persistent objections are outlined below.

Should Deferred Taxes Not Be Recognized? Some feel the income tax expense for a reporting period should be the income tax actually payable currently. Reasons given for this include the contention that the legal liability for taxes is determined only by the tax laws and that taxes are based on aggregate taxable income, not individual components of the aggregate amount. The FASB counters that it is not only possible, but desirable, to separate

the consequences of individual components of income from the financial reporting of those items. (FASB 1989) Thus, permit a company to defer paying tax on a particular event, it is only then and whether the tax will be paid that is impacted. Recognizing the tax effect when the event occurs, regardless of when the tax will be paid is consistent with accounting on an accrual rather than a cash basis.

Should Deferred Taxes Be Recognized for Only Some Items? Critics sometimes argue that the tax liability for certain recurring events will never be paid and therefore do not represent a liability.⁷⁷ An example often cited is the temporary difference due to depreciation. Because the temporary difference results frequently (as new assets are acquired), new reversing differences arise that offset reversing differences causing the balance in the deferred tax liability account to continually get larger. The contention is that no future tax payment will be required, so no liability should be recorded. The FASB's counter argument is that, though the aggregate amount of depreciation differences may get larger, the deferred tax liability for a particular depreciable asset usually does require payment. This is analogous to specific accounts payable requiring payment even though the total balance of accounts payable may grow larger year by year.

Should Deferred Taxes Be Discounted? Some accountants contend that deferred tax assets and liabilities should reflect the time value of money by discounting those amounts on a discounted (present value) basis.⁷⁸ For some deferred tax amounts such as operating loss carryforwards that might be realized after perhaps 20 years, in some cases, the time value might be significant. Practical considerations weighed heavily in the FASB's decision not to permit discounting. Discounting usually would require detailed scheduling of the reversals of all differences reversing in the future, and the selection of appropriate discount rates was a poor practical difficulty.

Should Classification Be Based on the Timing of Temporary Difference Reversals? Some feel that deferred tax assets and liabilities should be classified as a balance sheet as current or noncurrent according to the timing of the reversal of the temporary differences that gave rise to them. By this view, those deferred tax assets and liabilities related to temporary differences that will reverse within the coming year should be classified as current, while as noncurrent. Advocates of this view consider it to be consistent with the asset-liability perspective on deferred tax amounts. Again, practical considerations are reflected in the FASB's requirement that a deferred tax asset or deferred tax liability should be classified as a balance sheet as current or noncurrent according to the classification of the asset or liability to which it is related. Classifying a deferred tax liability related to depreciation as noncurrent because the depreciable asset is classified as noncurrent, for example, does not require detailed scheduling of the year-by-year originations and reversals of temporary differences related to depreciation.

DECISION MAKERS' PERSPECTIVE

Income taxes represent one of the largest expenditures that many firms incur. When state, local, and foreign taxes are considered along with federal taxes, the total bite can easily consume 40% of income. A key factor, then, in any decision that managers make should be the impact on taxes. Decision makers must constantly be alert to options that minimize or delay taxes. During the course of this chapter, we encountered situations that avoid taxes (for example, interest on municipal bonds) and those that delay taxes (for example, using accelerated depreciation on the tax return). Astute managers make investment decisions that consider the tax effect of available alternatives. Similarly, outside analysts should consider



⁷⁷For example, see Emil Czapka and Daniel Jeter, "Accounting for Deferred Taxes: Simplicity? Uncertainty?" *Accounting Horizons*, June 1989, pp. 7-11.

⁷⁸For example, see Harry White, Dale Martin, and Virginia Wilkins, "Streamers of Financial Statements By US Corps (Reprinted) *Public Company Accounting*, 1989, pp. 28-30.

how effectively management has managed its tax exposure and monitor the current and prospective impact of cases on their interests in the company.

Consider an example. Large, capital-intensive companies with significant investments in buildings and equipment often have sizable deferred tax liabilities from temporary differences in depreciation. If new investments cause the level in depreciable assets to at least remain the same over time, the deferred tax liability can be effectively delayed indefinitely. Investors and creditors should be watching for situations that might cause material increases of that deferred tax liability, such as impending plant closings or investment patterns that suggest declining levels of depreciable assets. Unexpected additional tax expenditures severely diminish an otherwise attractive prospective rate of return.

You also learned in the chapter that deferred tax assets represent future tax benefits. On such deferred tax assets that often reflect sizable future tax deductions is an operating loss carryforward. When a company has a large operating loss carryforward, a large amount of future income can be earned tax free. This tax shelter can be a huge advantage, not to be overlooked by careful analysts.

Managers and outsiders are aware that increasing debt increases risk. Deferred tax liabilities increase reported debt. As discussed and demonstrated in the previous chapter, risk often is measured by the debt to equity ratio, total liabilities divided by shareholders' equity. Other things being equal, the higher the debt to equity ratio, the higher the risk. Should the deferred tax liability be included in the computation of this ratio? Some analysts will argue that it should be excluded, observing that in many cases the deferred tax liability will remain the same or continually grows larger. Their contention is that no future tax payment will be required. Others, though, contend that is no different from the common situation which long-term borrowings tend to remain the same or continually grow larger. Recent¹⁹ supports the notion that deferred tax liabilities are, in fact, viewed by investors as real liabilities and they appear to discount them according to the timing and likelihood of the liability's settlement.

Anytime managerial discretion can materially impact reported earnings, analysts should be wary of the implications for earnings quality assessment. We indicated earlier that the decision as to whether or not a valuation allowance is used, as well as the size of the allowance, is largely discretionary. Alert investors should not overlook the potential for "earnings management" here. In fact, recent empirical evidence indicates that some companies do use deferred tax asset valuation allowance account to manage earnings upward to meet analyst forecasts.²⁰

In short, managers who make decisions based on estimated pretax cash flows and equity investors and creditors who make decisions based on pretax income numbers are perceiving growing one of the most important aspects of those decisions. Taxes should be a primary consideration in any business decision. ■

CONCEPT REVIEW EXERCISE

MULTIPLE DIFFERENCES AND OPERATING LOSS

Mid-South Cellular Systems began operations in 2000. That year the company reported taxable income of \$25 million. In 2007, its second year of operations, pretax accounting income was \$48 million, which included the following amounts:

1. Insurance expense of \$14 million, representing one-third of a \$42 million, three-year casualty and liability insurance policy that is deducted for tax purposes entirely in 2007.
2. Insurance expense for a \$1 million premium on a life insurance policy for the company president. This is not deductible for tax purposes.

¹⁹See Don Oliver and Carlo Padoa, "The Valuation of the Deferred Tax Liability: Evidence from the Street Market," *The Accounting Review*, April 1996, pp. 294-310.

²⁰Vergo George J., and Mary Margaret Frank, "Do Managers Use the Valuation Allowance Account to Manage Earnings Around Earnings Targets?" (April 30, 2004). *Finance Business School Working Paper No. 05-01*.

An asset with a four-year useful life was acquired last year. It is depreciated by the straight-line method on the income statement. MACRS is used on the tax return, causing deductions for depreciation to be more than straight-line depreciation the first two years but less than straight-line depreciation the next two years (\$ in millions):

| | Income Statement | Tax Return | Difference |
|------|------------------|------------|------------|
| 2006 | \$150 | \$198 | \$ (48) |
| 2007 | 150 | 264 | (114) |
| 2008 | 150 | 90 | 60 |
| 2009 | 150 | 48 | 102 |
| | \$600 | \$600 | 0 |

Equipment rental revenue of \$80 million, which does not include an additional \$20 million of advance payment for 2008 rent, \$100 million of rental revenue is reported on the 2007 income tax return.

A enacted tax rate is 40%.

Required:

Prepare the journal entry to record Mid-South Cellular's income taxes for 2007.

What is Mid-South Cellular's 2007 net income?

Show how any deferred tax amount(s), should be reported on the 2007 balance sheet.

Assume taxable income is expected in 2008 sufficient to absorb any deductible amounts carried forward from 2007.

Prepare the journal entry to record Mid-South Cellular's income taxes for 2007.

(\$ in millions)

| | 2006 | Current Year
2007 | Future Taxable
(Deductible)
Amounts | | Future
Taxable
Amounts
(total) | Future
Deductible
Amounts
(total) |
|------------------------------------|--------|----------------------|---|------|---|--|
| Accounting income | | \$ 88 | | | | |
| Permanent differences: | | | | | | |
| Life insurance premium | | | | | | |
| Charitable contributions | | | | | | |
| Excess insurance | | 28 | \$ 4 | \$ 4 | \$ 28 | |
| Depreciation | \$ 48 | 14 | 60 | 12 | 62 | |
| Advance rent | | 20 | (20) | | | \$ (20) |
| Operating loss | | \$ (37) | | | | |
| Loss on stock | 2% | 25 | | | | |
| Loss carryforward | | 8 | | | | (8) |
| | | \$ 0 | | | \$ 90 | \$ (28) |
| Enacted tax rate | 40% | 40% | | | 40% | 40% |
| Tax payable (refundable) | \$ (0) | \$ 0 | | | | |
| Deferred tax liability | | | | | \$ (6.0) | |
| Deferred tax asset | | | | | | \$ (1.2) |
| | | | | | ↓
Deferred
Tax Liability | ↓
Deferred
Tax Asset |
| Ending balances: | | | | | \$ (6.0) | \$ (1.2) |
| or: Beginning balance (\$48 × 40%) | | | | | (19.2) | (0.0) |
| Change in balances: | | | | | <u>\$ (6.8)</u> | <u>\$ (1.2)</u> |

Net income difference

SOLUTION

The difference between the accounting income and the taxable income is the difference between the accounting income and the taxable income. The difference is the difference between the accounting income and the taxable income.

Both the advance rent and the operating loss are not yet paid, but they are deductible in future periods.

income tax expense is the sum of the two components: (1) the current tax expense or refund determined by (2) the deferred tax benefit and (3) the refund of 2006 taxes paid.

Journal Entry at the End of 2007

| | | |
|---|------|------|
| Income tax expense (to balance) | 35.6 | |
| Receivable—income tax refund (determined above) | 0.0 | |
| Deferred tax asset (determined above) | 2 | |
| Deferred tax liability (determined above) | | 52.3 |

Note: In this example, the company has a net deferred tax liability of \$50.3 at the end of 2007. The deferred tax liability is the difference between the deferred tax asset and the deferred tax liability.

2. What is Mini-South Cellular's 2007 pretax income?

| | |
|--------------------------|---------------|
| Pretax accounting income | \$58.0 |
| Income tax expense | (35.6) |
| Net income | <u>\$22.4</u> |

3. Show how any deferred tax amount(s) should be reported on the 2007 balance sheet.

A taxable income is expected in 2008 sufficient to absorb any deductible amounts carried forward from 2007.

| (\$ in millions) | | | | | |
|--|---|--|-------------|-----------------------------------|------|
| | Classification
Current—C
Noncurrent—N | Future
Taxable
(Deductible)
Amounts | Tax
Rate | Deferred Tax
(Asset) Liability | |
| | | | | C | N |
| Prepaid insurance | | 28 | x 40% | 11.2 | |
| Depreciable assets | N | 162 | x 40% | | 64.8 |
| Liability—rent received in advance | | (20) | x 40% | (8.0) | |
| Unrelated to any balance sheet account | | | | | |
| Operating loss carryforward | C* | (8) | x 40% | (3.2) | |
| Net current liability (asset) | | | | 0.0 | |
| Net noncurrent liability (asset) | | | | | 64.8 |

*Deferred tax asset classified entirely as current because 2008 income is expected to be sufficient to realize its benefit.

No net current amount

Long-term liabilities:

Deferred tax liability: 5 - 1 = 4

Note: These net amounts (\$0.0 = \$4.8 - \$4.8) result in the net total deferred tax liability and deferred tax expense type required by SFAS 96.



FINANCIAL REPORTING CASE SOLUTION

- What's the difference? Explain to Laura how differences between financial reporting standards and income tax rules might cause the two tax amounts to differ. (p. 774) The differences in the rules for computing taxable income and those for financial reporting will cause amounts to be included in taxable income a different year(s) from the year in which they are recognized for financial reporting purposes. Temporary differences result in future taxable or deductible amounts when the temporary differences reverse. As a result, tax payments frequently occur in years different from the years in which the revenues and expenses that caused the taxes are generated.
- What is the conceptual advantage of determining income tax expense as we do? (p. 774) Income tax expense is the combination of the current tax effect and the deferred tax consequences of the period's activities. Under the asset-liability approach, the deferred

of accounting for income taxes is to recognize a deferred tax liability or deferred tax asset for the tax consequences of amounts that will become taxable or deductible in future years as a result of transactions or events that already have occurred. A result is to recognize both the current and the deferred tax consequences of the operations of a reporting period.

Are there differences between financial reporting standards and income tax rules that will not contribute to the difference between income tax expense and the amount of income taxes paid? (p. 785) Yes. Some differences between accounting income and taxable income are caused by transactions and events that will never affect taxable income or taxes payable. These differences between accounting income and taxable income do not reverse later. These are permanent differences which are disregarded when determining (a) the tax payable currently, (b) the deferred tax effect, and therefore (c) the income tax expense. ■

THE BOTTOM LINE

1. Temporary differences produce future taxable amounts when the taxable income will be increased relative to accounting income in one or more future years. These produce deferred tax liabilities for the taxes to be paid on the future taxable amounts. Income tax expense for the year includes an amount for which payment (or receipt) is deferred in addition to the amount for which payment is due currently. The deferred amount is the change in the tax liability (or asset).
2. When the future tax consequence of a temporary difference will be to decrease taxable income relative to accounting income, future deductible amounts are created. These have favorable tax consequences that are recognized as deferred tax assets. Deferred tax assets are recognized for all deductible temporary differences. However, a deferred tax asset is then reduced by a valuation allowance if it is more likely than not that some portion or all of the deferred tax asset will not be realized.
3. Nontemporary differences between the reported amount of an asset or liability in the financial statements and its tax basis are those caused by transactions and events that under existing tax law will never affect taxable income or taxes payable. These are disregarded when determining both the tax payable currently and the deferred tax effect. The deferred tax liability (or asset) for which payment (or receipt) is deferred is based on enacted tax rates applied to the taxable or deductible amount. If a change in a tax law or rate occurs, the deferred tax liability or asset is adjusted to reflect the change in the amount to be paid or recovered. That effect is reflected in operating income in the year of the enactment of the change in the tax law or rate.
4. When multiple temporary differences exist, the total of the future taxable amounts is multiplied by the future tax rate to determine the appropriate balance for the deferred tax liability, and the total of the future deductible amounts is multiplied by the future tax rate to determine the appropriate balance for the deferred tax asset.
5. Tax laws permit an operating loss to be used to reduce taxable income in other profitable years by either a carryback of the loss to prior years (2) or a carryforward of the loss to later years (up to 20). The tax benefit of an operating loss carryback or an operating loss carryforward is recognized in the year of the loss.
6. Deferred tax assets and deferred tax liabilities are classified as either current or noncurrent, according to how the related assets or liabilities are classified for financial reporting. Disclosure notes should reveal additional relevant information needed for full disclosure pertaining to deferred tax amounts reported on the balance sheet, the components of income tax expense, and available operating loss carryforwards.
7. Through intraperiod tax allocation, the total income tax expense for a reporting period is allocated among the financial statement items that gave rise to it: specifically income (or loss) from continuing operations, discontinued operations, extraordinary items, and prior period adjustments to the beginning retained earnings balance). ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 16-1** A number of the major directors of a company have the company's income statement reports an income expense of \$12.1 million, but the income tax obligation to the government for the year is only \$1.9 million. How might the corporate controller explain the apparent discrepancy?
- Q 16-2** A deferred tax liability (or asset) is described in the tax effect of the temporary differences between the financial statement carrying amount of an asset or liability and its tax basis. Explain the tax effect of the temporary difference. How might it produce a deferred tax liability? A deferred tax asset?
- Q 16-3** Sometimes a temporary difference will involve future deductible amounts. Explain what is meant by future deductible amounts. Describe two general situations that have this effect. How are such situations recognized in the financial statements?
- Q 16-4** The benefit of future deductible amounts can be achieved only if future income is sufficient to take advantage of the deferred deductions. For that reason, not all deferred tax assets will ultimately be realized. How is this possibility reflected in the way the company's deferred tax assets?
- Q 16-5** Temporary differences result in future taxable or deductible amounts when the related asset or liability is converted or settled. Some differences, though, are not temporary. What events create nontemporary or permanent differences? What effect do these have in the determination of income taxes payable? Of income for the period?
- Q 16-6** Identify three examples of differences with no deferred tax consequences.
- Q 16-7** The corporate tax rate for Hudson Delivery has been 35% for each of its 12 years of operation. Company executives expect a much-deferred tax reform bill to be passed by Congress early next year. The new tax rate would increase Hudson's tax rate to 42%. When measuring this year's deferred tax liability, which tax should be used?
- Q 16-8** Suppose a tax reform bill is enacted that causes the corporate tax rate to change from 34% to 36%. How would this affect an existing deferred tax liability? How would the change be reflected in income?
- Q 16-9** An operating loss occurs when non-deductible expenses exceed taxable revenues. Tax laws permit the operating loss to be used to reduce taxable income in other profitable years by either a carryback or the loss prior years or a carryforward of the loss to later years. How are loss carrybacks and loss carryforwards recognized in financial reporting purposes?
- Q 16-10** How are deferred tax assets and deferred tax liabilities reported on a classified balance sheet?
- Q 16-11** Additional disclosures are required pertaining to deferred tax amounts reported on the balance sheet. What are the needed disclosures?
- Q 16-12** Additional disclosures are required pertaining to the income tax expense reported on the income statement. What are the needed disclosures?
- Q 16-13** What is interrupted tax allocation?
- Q 16-14** Some commentators believe that deferred taxes should be recognized only for some temporary differences. What is the consumer view for this argument? What is the consumer argument that serves as the basis for the FASB's requirement that deferred taxes should be recognized for all temporary differences?

BRIEF EXERCISES

BE 16-1
Temporary difference
deferred tax liability

• 7

BE 16-2
Temporary difference
deferred tax asset

• 10

BE 16-3
Single temporary
difference, income tax
payable given

• 12

A company reports *pretax accounting income* of \$10 million, but because of a single temporary difference, *taxable income* is only \$7 million. No temporary differences existed at the beginning of the year, and the tax rate is 40%. Prepare the appropriate journal entry to record income taxes.

A company reports *pretax accounting income* of \$10 million, but because of a single temporary difference, *taxable income* is \$13 million. No temporary differences existed at the beginning of the year, and the tax rate is 40%. Prepare the appropriate journal entry to record income taxes.

In 2006, Ryan Management collected rent revenue for 2007 tenants occupancy. For financial reporting, the rent is recognized as income in the period earned, but for financial tax reporting it is taxed when due. The unearned portion of the rent collected in 2006 was \$30 million. Taxable income is \$180 million. A temporary difference existed at the beginning of the year, and the tax rate is 40%. Prepare the appropriate journal entry to record income taxes.

16-10
 16-11 temporary
 difference income (or
 taxable) over

16-12

16-13
 16-14 net after allowance

16-15

16-16
 16-17 net after allowance

16-18

16-19
 16-20 temporary
 difference determine
 whether in year of
 determining prior year
 deferred tax amount

16-21

16-22

16-23 temporary and
 16-24 temporary
 difference determine
 whether in year of
 determining prior year
 deferred tax amount

16-25

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16-401

Refer to the situation described in 16-1. Suppose the unrecognized portion of the rent collected was \$40 million at the end of 2007. Taxable income is \$200 million. Prepare the appropriate journal entry to record accrual taxes.

At the end of the year, the deferred tax asset account had a balance of \$12 million attributable to a cumulative temporary difference of \$30 million in a liability for estimated expenses. Taxable income is \$34 million. No temporary differences existed at the beginning of the year, and the tax rate is 40%. Prepare the journal entry to record income taxes assuming it is more likely than not that one-fourth of the deferred tax asset will be realized in the future.

Hyperion Corporation is a provider of electronic card payment terminals, point-of-sale network products, and software. In its 2003 annual report, it reported current and long-term deferred tax assets totaling \$56.5 million. The company also reported valuation allowances totaling \$56.5 million. What would motivate Hyperion to have a valuation allowance equal to its deferred tax assets?

Kara Fashion uses straight-line depreciation for financial statements reporting and MACRS for income tax reporting. Three years after its purchase, one of Kara's buildings has a carrying value of \$400,000 and a tax basis of \$300,000. There were no other temporary differences and no nonreciprocal differences. Taxable income was \$4 million and Kara's tax rate is 40%. What is deferred tax liability to be reported in the balance sheet? Assuming that income was \$10 million the previous year, prepare the appropriate journal entry to record income taxes for this year.

Differences between financial statements and taxable income were as follows:

| | In millions |
|--------------------------|-------------|
| Pretax accounting income | \$500 |
| Permanent difference | (20) |
| | 770 |
| Temporary difference | (18) |
| Taxable income | \$250 |

The cumulative temporary difference is due to \$40 million (also the future taxable amount). The enacted tax rate is 40%. What is deferred tax asset or liability to be reported in the balance sheet?

Shannon Polymer uses straight-line depreciation for financial reporting purposes for equipment costing \$800,000 and with an expected useful life of four years and no residual value. For tax purposes the deduction is 40% (30%, 20%, and 10%) in those years. Pretax accounting income the first year the equipment was used was \$900,000, which includes interest revenue of \$20,000 from municipal bonds. Other than the two described, there are no differences between accounting income and taxable income. The enacted tax rate is 40%. Prepare the journal entry to record income taxes.

J-Max, Inc. has pretax accounting income of \$241,000 and taxable income of \$100,000 in 2006. The only difference between accounting and taxable income is estimated product warranty costs for sales this year. Warranty payments are expected to be in equal amounts over the next three years. Recent tax legislation will change the tax rate from the current 40% to 30% in 2008. Determine the amount warranty is for J-Max's income taxes for 2006 and prepare the appropriate journal entry.

Superior Developments sells lots for residential developments. When lots are sold, Superior recognizes income for financial reporting purposes in the year of the sale. For some lots, Superior recognizes income for tax purposes when collected. In the prior year, income recognized for financial reporting purposes for lots sold has was \$20 million, which would be collected equally over the next two years. The enacted tax rate was 40%. This year, a new tax law was enacted, reducing the tax rate from 40% to 35% beginning next year. Calculate the amount by which Superior should reduce its deferred tax liability this year.

During its first year of operations, Nile.com reported an operating loss of \$13 million for financial reporting and tax purposes. The enacted tax rate is 40%. Prepare the journal entry to recognize the income tax benefit of the operating loss.

BE 16-3
Operating loss
carryback

• LO2

BE 16-14
Interperiod tax
allocation

• LO2

At Parts Corporation reported an operating loss of \$25 million for financial reporting and tax purposes. Taxable income last year and the previous year respectively, was \$20 million and \$15 million. The state tax rate each year is 40%. Prepare the journal entry to recognize the income-tax benefit of the operating loss. At Parts elects the carryback option.

Southeast Airlines had pretax earnings of \$65 million, including an extraordinary gain of \$10 million. The company's tax rate is 40%. What is the amount of income tax expense that Southeast should report in its income statement? How should the extraordinary gain be reported?

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/apacalcac

E 16-1
Single temporary
difference: taxable
income given

• LO

E 16-2
Single temporary
difference: income tax
payable given

• LO LO2

E 16-3
Single temporary
difference: if it is
deductible amounts,
taxable income given

• LO2

E 16-4
Deferred tax asset:
income tax payable
given, valuation
allowance

• LO2 LO3

E 16-5
Deferred tax asset:
income tax payable
given, previous balance
in valuation allowance

• LO2 LO3

At Rio Corporation reports pretax earnings for 2006 of \$400,000, but due to a single temporary difference, taxable income is only \$250,000. At the beginning of the year, no temporary differences existed.

Required:
Assuming a tax rate of 35%, prepare the appropriate journal entry to record At Rio's income taxes.

In 2005, Atworth Corporation collected rent revenue for 2007 tenant occupancy. For income tax reporting, the rent is taxed when collected. For financial statement reporting, the rent is recognized as revenue in the period earned. The unearned portion of the rent collected in 2005 amounted to \$300,000 at December 31, 2005. Atworth had no temporary differences at the beginning of the year.

Required:

Assuming an income tax rate of 40% and 2006 income tax payable of \$450,000, prepare the journal entry to record income taxes for 2006.

Lance Lawn Services reports bad debt expense using the allowance method. For tax purposes, the expense is deducted when accounts prove uncollectible (the direct write-off method). At December 31, 2006, Lance has accounts receivable and an allowance for uncollectible accounts of \$2 million and \$1 million, respectively, and taxable income of \$75 million. At December 31, 2005, Lance reported a deferred tax asset of \$400,000 related to this difference in reporting. Assume its only temporary difference (the allowance) is 40% each year.

Required:

Prepare the appropriate journal entry to record Lance's income tax provision for 2006.

At the end of 2005, Payne Industries had a deferred tax asset account with a balance of \$30 million attributable to a temporary book-tax difference of \$75 million in a liability for estimated expenses. At the end of 2006, the temporary difference is \$70 million. Payne has no other temporary differences and no valuation allowance for the deferred tax asset. Taxable income for 2006 is \$180 million and the tax rate is 40%.

Required:

1. Prepare the journal entry(s) to record Payne's income taxes for 2006, assuming it is more likely than not that the deferred tax asset will be realized.
2. Prepare the journal entry(s) to record Payne's income taxes for 2006, assuming it is more likely than not that one-half of the deferred tax asset will not ultimately be realized.

This is a variation of the previous exercise, modified to assume a previous balance in the asset allowance.

At the end of 2005, Payne Industries had a deferred tax asset account with a balance of \$30 million attributable to a temporary book-tax difference of \$75 million in a liability for estimated expenses. At the end of 2006, the temporary difference is \$70 million. Payne has no other temporary differences, taxable income for 2006 is \$180 million and the tax rate is 40%.

Payne has a valuation allowance of \$10 million for the deferred tax asset at the beginning of 2006.

Required:

1. Prepare the journal entry(s) to record Payne's income taxes for 2006, assuming it is more likely than not that the deferred tax asset will be realized.
2. Prepare the journal entry(s) to record Payne's income taxes for 2006, assuming it is more likely than not that one-half of the deferred tax asset will not ultimately be realized.

large temporary difference determine taxable income after the carryover deduction is amount

4. 2002

outside choice: CPA are determining deferred tax amounts

1. 3. 2. 4. 0

On January 1, 2004, Amsco Company purchased a building for \$36 million. Amsco uses straight-line depreciation for financial statements reporting and MACRS for income tax reporting. At December 31, 2005, the carrying value of the building was \$30 million and its tax basis was \$40 million. At December 31, 2006, the carrying value of the building was \$24 million and its tax basis was \$12 million. There were no other temporary differences and no nontemporary differences. Pretax accounting income for 2006 was \$20 million.

- Prepare the appropriate journal entry to record Amsco's 2006 income taxes. Assume an income tax rate of 40%.
- What is Amsco's 2006 net income?

The following questions dealing with various topics in this chapter are adapted from prior CPA exam questions. Determine the response that best completes the statements or questions.

- Benson Co. uses different methods to depreciate equipment for financial statement and income tax purposes. Sub has temporary differences that will reverse during the next year and add to taxable income. Deferred tax assets that are based on these temporary differences should be classified as
 - future taxable assets
 - future deductible liabilities
 - current liability
 - noncurrent liability

Items 1 and 2 are based on the following:

Kent Inc.'s reconciliation between financial statements and taxable income for 2006 follows:

| | |
|------------------------------------|-----------|
| Pretax financial income | \$150,000 |
| Permanent differences | 12,000 |
| | 138,000 |
| Temporary differences—depreciation | 19,000 |
| Taxable income | \$129,000 |

Additional information:

| | At | |
|---|----------|----------|
| | 12/31/05 | 12/31/06 |
| Cumulative temporary differences (future taxable amounts) | \$11,000 | \$30,000 |

The enacted tax rate was 34% for 2005 and 40% for 2006 and years thereafter.

- In its December 31, 2006, balance sheet, what amount should Kent report as deferred income tax liability?
 - \$3,100
 - \$1,100
 - \$7,300
 - \$6,100
- In its 2006 income statement, what amount should Kent report as current portion of income tax expense?
 - \$4,000
 - \$55,200
 - \$55,800
 - \$6,100
- Moby Co. reported the following operating income (loss) for its first three years of operations:

| | |
|------|------------|
| 2004 | \$ 300,000 |
| 2005 | (200,000) |
| 2006 | 720,000 |

For each year there were no deferred income taxes, and Moby's effective income tax rate was 40%. In its 2005 income tax return, Moby's tax advisor took the maximum amount of loss possible. In its 2006 income statement, what amount should Moby report as prior income tax expense?

- \$ 70,000
- \$ 90,000
- \$ 70,000
- \$ 90,000

E 16-8

Single temporary difference: taxable income given; calculate deferred tax liability

•

Ayres Services acquired an asset for \$40 million in 2006. The asset is depreciated for financial reporting purposes over four years on a straight-line basis (no residual value). For tax purposes the asset is depreciated by MACRS. The enacted tax rate is 40%. Amounts for pretax accounting income, depreciation, and taxable income in 2006, 2007, 2008, and 2009 are as follows:

| | \$ in millions | | | |
|--------------------------------------|----------------|-------|-------|-------|
| | 2006 | 2007 | 2008 | 2009 |
| Accounting income | \$140 | \$150 | \$135 | \$429 |
| Depreciation for financial reporting | 20 | 20 | 20 | 20 |
| Depreciation on the tax return | (25) | (33) | (15) | (7) |
| Taxable income | \$95 | \$97 | \$100 | \$413 |

Required

For each year 2006 through 2009, determine (a) the temporary taxable income difference for the depreciation asset and (b) the balance to be reported to the deferred tax liability account.

E 16-9

Identifying future taxable amounts and future deductible amounts

• T 33

Listed below are 10 causes of temporary differences. For each temporary difference, indicate (by "D" or "T") whether it will create future deductible amounts ("D") or future taxable amounts ("T").

Temporary Difference

1. Accrual of loss contingency, tax-deductible when paid.
2. Newspaper subscriptions: taxable when received, recognized for financial reporting when earned.
3. Prepaid rent, tax-deductible when paid.
4. Accrued bond interest expense, tax-deductible when paid.
5. Prepaid insurance, tax-deductible when paid.
6. Unrealized loss from recording investments available for sale at fair market value (tax-deductible when investments are sold).
7. Bad debt expense: allowance method for financial reporting; direct write-off for tax purposes.
8. Advance rent receipts on an operating lease (as the lessor), taxable when received.
9. Straight-line depreciation for financial reporting; accelerated depreciation for tax purposes.
10. Accrued expense for employee postretirement benefits, tax-deductible when subsequent payments are made.

E 16-10

Identifying future taxable amounts and future deductible amounts

• T 32

This is a variation of the previous exercise, modified to focus on the balance sheet accounts related to deferred tax amounts.

Listed below are 10 causes of temporary differences. For each temporary difference, indicate the balance sheet account for which the situation creates a temporary difference.

Temporary Difference

1. Accrual of loss contingency, tax-deductible when paid.
2. Newspaper subscriptions, taxable when received, recognized for financial reporting when earned.
3. Prepaid rent, tax-deductible when paid.
4. Accrued bond interest expense, tax-deductible when paid.
5. Prepaid insurance, tax-deductible when paid.
6. Unrealized loss from recording investments available for sale at fair market value (tax-deductible when investments are sold).
7. Bad debt expense: allowance method for financial reporting; direct write-off for tax purposes.
8. Advance rent receipts on an operating lease (as the lessor), taxable when received.
9. Straight-line depreciation for financial reporting; accelerated depreciation for tax purposes.
10. Accrued expense for employee postretirement benefits, tax-deductible when subsequent payments are made.

E 16-11

Single temporary difference: nontemporary difference; calculate taxable income

• T 31, T 34

Southwest Atlantic Distribution began operations in January 2006 and purchased a delivery truck for \$40,000. Southwest Atlantic plans to use straight-line depreciation over a four-year expected useful life for financial reporting purposes. For tax purposes, the deduction is 50% of cost in 2006, 30% in 2007, and 20% in 2008. Pretax accounting income for 2006 was \$312,000, which includes interest revenue of \$40,000 from municipal bonds. The enacted tax rate is 40%.

Required

Assuming any difference between accounting income and taxable income after that those described above:

1. Prepare the journal entry to record income taxes in 2006.
2. What is Southwest Atlantic's 2006 net income?

- 4-12
only temporary
difference
— carry forward
— will eliminate
future income

10-126

Period Developers Inc. began operations in December 2006. Period set a price of \$400 for residential development. Period recognizes income for financial reporting purposes in the year it sells the plots. For some of the plots sold, Period recognizes the income for tax purposes when collected. Income Period recognized for financial reporting purposes in 2006 for plots sold that way was \$40 million. The company expected to collect this income over the next two years as follows:

| | |
|------|--------------|
| 2007 | \$24 million |
| 2008 | 16 million |
| | \$40 million |

The company's tax accounting income for 2006 was \$50 million. On its own return, Period is recognizing \$4 million of goodwill over the 5-year period permitted by law. Goodwill is not amortizable for financial reporting purposes and thus is not reflected in Period's accounting income. The enacted tax rate is 30%.

Required

- Assuming no differences between accounting income and taxable income other than those described above, prepare the journal entry to record income taxes as of 2006.
What is Period's 2006 net income?

- 4-12
only temporary
difference is the only
one

10-126

Allmond Corporation, organized on January 3, 2006, had pretax accounting income of \$4 million and taxable income of \$20 million for the year ended December 31, 2006. The 2006 tax rate is 35%. The only difference between accounting income and taxable income is estimated product warranty costs. Expected payments and scheduled tax rates (based on recent tax legislation) are as follows:

| | | |
|------|-------------|-----|
| 2007 | \$2 million | 30% |
| 2008 | 1 million | 30% |
| 2009 | 1 million | 30% |
| 2010 | 1 million | 25% |

Required

Prepare the journal entries to record Allmond's income taxes for 2006 and prepare the appropriate journal entry.

- What is Allmond's 2006 net income?

- 4-14
deferred tax asset
— amortizable
— 10%

10-125

Arnold Industries has pretax accounting income of \$43 million for the year ended December 31, 2006. The tax rate is 40%. The only difference between accounting income and taxable income relates to an operating lease in which Arnold is the lessee. The inception of the lease was December 28, 2006. An \$8 million advance rent payment at the inception of the lease is tax deductible in 2006 but, for financial reporting purposes, payments prepaid rent expense is to be recognized equally over the four-year lease term.

Required

- Determine the amounts necessary to record Arnold's income taxes for 2006 and prepare the appropriate journal entry.
- Determine the amounts necessary to record Arnold's income taxes for 2007 and prepare the appropriate journal entry. Prepare accounting income was \$50 million for the year ended December 31, 2007.
- Assume a new tax law is enacted in 2007 that causes the tax rate to change from 40% to 30% beginning in 2008. Determine the amounts necessary to record Arnold's income taxes for 2007 and prepare the appropriate journal entry.
- What is Arnold's 2007 income tax expense different when the tax rate change occurs from what it would be without the change?

- 4-15
deferred tax change
— 10%

10-125

Brown Industries reported a deferred tax liability of \$8 million for the year ended December 31, 2005, related to a temporary difference of \$20 million. The tax rate was 40%. The temporary difference is expected to reverse in 2007 at which time the deferred tax liability will become payable. There are no other temporary differences in 2005-2007. Assume a new tax law is enacted in 2006 that causes the tax rate to change from 40% to 30% beginning in 2007. The rate remains 40% for 2006 taxes. Taxable income in 2006 is \$30 million.

Required

Determine the effect of the change and prepare the appropriate journal entry to record Brown's income tax expense in 2006. What adjustment, if any, is needed to revise retained earnings as a result of the change?

The following information follows: (Note: The First Period)

- At December 31, 2006, temporary differences were associated with the following future taxable identifiable amounts:

| | |
|------------------|----------|
| Depreciation | \$60,000 |
| Prepaid expenses | 17,000 |
| Warranty expense | (12,000) |

- 4-16
only temporary
— recorded
— 10%

10-126

- b. No temporary differences existed at the beginning of 2006.
 c. Pretax accounting income was \$80,000 and taxable income was \$15,000 for the year ended December 31, 2006.
 d. The tax rate is 40%.

Required:

Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.

The information below pertains to Hach, R. Frigere et al.

- a. At December 31, 2006, temporary differences existed between the financial statements and the tax returns as follows:

| | (\$ in millions) | | |
|---|------------------|-----------|------------------------------------|
| | Carrying Amount | Tax Basis | Future Taxable (Deductible) Amount |
| Buildings and equipment (net of accretion and depreciation) | \$ 20 | \$90 | \$10 |
| Prepaid insurance | 50 | 0 | 50 |
| Liability—loss contingency | 25 | 0 | (25) |

- b. No temporary differences existed at the beginning of 2006.
 c. Pretax accounting income was \$200 million and taxable income was \$145 million for the year ended December 31, 2006. The tax rate is 40%.

Required:

1. Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.
 2. What is the 2006 net income?

Four independent situations are described below. Each involves future deductible amounts and/or future taxable amounts produced by temporary differences:

| | (\$ in thousands) | | | |
|----------------------------------|-------------------|------|-------|-------|
| | Situation | | | |
| | 1 | 2 | 3 | 4 |
| Variable income | \$85 | \$25 | \$195 | \$360 |
| Future deductible amounts | 15 | | 20 | 20 |
| Future taxable amounts | | 15 | 15 | 30 |
| Balance at beginning of the year | | | | |
| Deferred tax asset | 2 | | 8 | 4 |
| Deferred tax liability | | 2 | 2 | |

The enacted tax rate is 40%.

Required:

For each situation determine the:

- a. Income tax payable (refund).
 b. Deferred tax asset—balance.
 c. Deferred tax asset—change (decrease).
 d. Deferred tax liability—balance.
 e. Deferred tax liability—change (increase).
 f. Income tax expense.

E 16-19

Determine taxable income

E 16-22

Eight independent situations are described below. Each involves future deductible amounts and/or future taxable amounts produced by

| | | in millions | |
|---|----------------------|---|---------|
| | | Temporary Differences Reported First on | |
| | The Income Statement | The Tax Return | |
| | Revenue | Expense | Revenue |
| | | | Expense |
| | | \$20 | |
| 2 | \$20 | | |
| 3 | | | \$20 |
| 4 | | | |
| 5 | 5 | 20 | |
| 6 | | 20 | 15 |
| 7 | 15 | 20 | |
| 8 | 15 | 20 | 5 |

Required:

For each situation, determine whether the income statement gross accounting income is \$100 million.

For the year ended December 31, 2006, Fidelity Payment ng reported gross accounting income of \$477,000. Selected information for 2006 from Fidelity's records follows:

| | |
|---|----------|
| Interest income on municipal bonds | \$12,000 |
| Depreciation claimed on the 2006 tax return in excess of depreciation on the income statement | \$5,000 |
| Carrying amount of depreciable assets at the end of the year | \$5,000 |
| Warranty expense reported on the income statement | 20,000 |
| Actual warranty expenditures in 2006 | 14,000 |

Fidelity's income tax rate is 40%. At January 1, 2006, Fidelity's records indicated balances of zero and \$1,000 in its deferred tax asset and deferred tax liability accounts, respectively.

Required:

- Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.
- What is Fidelity's 2006 net income?

During 2006, the first year of operations, Bayfield Steel Corporation reported an operating loss of \$375,000 for financial reporting and tax purposes. The enacted tax rate is 40%.

Required:

- Prepare the journal entry to recognize the income tax benefit of the operating loss. Assume the weight of available evidence suggests future taxable income sufficient to benefit from future deductible amounts from the operating loss carryforward. Show the lower portion of the 2006 income statement that reports the income tax benefit of the operating loss.

Wyatt Steel Metal reported an operating loss of \$100,000 for financial reporting and tax purposes in 2006. The enacted tax rate is 40%. Taxable income, tax rates, and income taxes paid in Wyatt's first four years of operations were as follows:

| | Taxable Income | Tax Rates | Income Taxes Paid |
|------|----------------|-----------|-------------------|
| 2002 | \$50,000 | 20% | \$10,000 |
| 2003 | 70,000 | 30 | 21,000 |
| 2004 | 80,000 | 40 | 32,000 |
| 2005 | 60,000 | 45 | 27,000 |

Required:

- Prepare the journal entry to recognize the income tax benefit of the operating loss. Wyatt elects the carryback option.
- Show the lower portion of the 2006 income statement that reports the income tax benefit of the operating loss.

This exercise is based on the situation described in the previous exercise, modified to include a carryforward in addition to a carryback.

Wyatt Steel Metal reported an operating loss of \$100,000 for financial reporting and tax purposes in 2006. The enacted tax rate is 40%. Taxable income, tax rates, and income taxes paid in Wyatt's first four years of operations were as follows:

| | Taxable Income | Tax Rates | Income Taxes Paid |
|------|----------------|-----------|-------------------|
| 2002 | \$50,000 | 20% | \$10,000 |
| 2003 | 70,000 | 30 | 21,000 |
| 2004 | 80,000 | 40 | 32,000 |
| 2005 | 60,000 | 45 | 27,000 |

Required:

- Prepare the journal entry to recognize the income tax benefit of the operating loss. Wyatt elects the carryback option.
- Show the lower portion of the 2006 income statement that reports the income tax benefit of the operating loss.

At December 31, 2006, Delta Corporation has a \$16 million balance in its deferred tax asset account and a \$4 million balance in its deferred tax liability account. The balances were due to the following cumulative temporary differences:

- Estimated warranty expense, \$4 million expense recorded in the year of the sale, tax-deductible when paid one year warranty.
- Depreciation expense, \$3 million straight line on the income statement, MACRS on the tax return.

3. Income from installment sales of properties, \$50 million income recorded in the year of the sale payable when received equally over the next five years.
4. Bad debt expense, \$25 million allowance method for accounting; direct write-off for tax purposes.

Required:

Show how any deferred tax amounts should be calculated and reported on the 2006 balance sheet. The tax rate is 40%.

E 18-25

Single temporary difference, multiple tax rates, balance sheet classification

LO 1, LO4, LO5, LO6

Case Development began operations in December 2006. When property is sold on an installment basis, revenue from installment sales is reported by the installment method in the year of the sale, while the installment income is reported by the accrual method over the next three years. The 2006 installment income was \$600,000 and will be collected over the next three years. Scheduled installment and expected tax rates for 2007–2009 are as follows:

| | | |
|------|-----------|-----|
| 2007 | \$150,000 | 30% |
| 2008 | 250,000 | 40 |
| 2009 | 200,000 | 40 |

Pretax accounting income for 2006 was \$814,000, which includes interest revenue of \$10,000 from municipal bonds. The enacted tax rate for 2006 is 30%.

Required:

1. Assuming no differences between accounting income and taxable income other than those described above, prepare the appropriate journal entry to record Case's 2006 income taxes.
2. What is Case's 2006 net income?
3. How should the deferred tax amount be classified in a classified balance sheet?

E 18-26

Two temporary differences, nontemporary difference, multiple tax rates, balance sheet classification

LO 1, LO2, LO4, LO5, LO6, LO7

This exercise is a variation of the previous exercise modified to include a second temporary difference. Case Development began operations in December 2006. When property is sold on an installment basis, revenue from installment sales is reported by the installment method in the year of the sale, while the installment income is reported by the accrual method over the next three years. The 2006 installment income was \$600,000 and will be collected over the next three years. Scheduled installment and expected tax rates for 2007–2009 are as follows:

| | | |
|------|-----------|-----|
| 2007 | \$150,000 | 30% |
| 2008 | 250,000 | 40 |
| 2009 | 200,000 | 40 |

Case also had product warranty costs of \$30,000 expensed for financial reporting purposes in 2006. For tax purposes, only the \$20,000 of warranty costs actually paid in 2006 was deducted. The remaining \$10,000 will be deducted for tax purposes when paid over the next three years as follows:

| | |
|------|----------|
| 2007 | \$20,000 |
| 2008 | 25,000 |
| 2009 | 15,000 |

Pretax accounting income for 2006 was \$814,000, which includes interest revenue of \$10,000 from municipal bonds. The enacted tax rate for 2006 is 30%.

Required:

1. Assuming no differences between accounting income and taxable income other than those described above, prepare the appropriate journal entry to record Case's 2006 income taxes.
2. What is Case's 2006 net income?
3. How should the deferred tax amounts be classified in a classified balance sheet?

E 18-27

Identifying income tax deferrals

LO 1, LO2, LO4, LO7

Situation

1. Advance payments on an operating lease not deductible when paid
2. Estimated warranty costs, tax deductible when paid
3. Rent revenue collected in advance, cash basis for tax purposes
4. Interest received from investments in municipal bonds
5. Prepaid expenses tax deductible when paid
6. Operating loss carryforward
7. Operating loss carryback
8. Bad debt expense allowance method for accounting; direct write-off for tax
9. Organization costs expensed in 2006 but not deductible over 15 years
10. Life insurance proceeds received upon the death of the company president

6-28
Multiple-choice: terminology

1. Through LOB

Items below are several terms and phrases associated with accounting for income taxes. Pair each item from List A (left column) with the item from List B that is most appropriately associated with it.

| List A | List B |
|---|---|
| a. No tax consequences | a. Deferred tax liability |
| b. Originates from reverses | b. Deferred tax asset |
| c. Reverses after tax consequences | c. 2 years |
| d. Operating loss | d. Current and deferred tax consequences combined |
| e. Future tax effect of deductible expenses not deductible when paid | e. Temporary difference |
| f. Tax loss carryback | f. Specified tax rates times amount reversing multi-year |
| g. Future tax effect of estimated warranty expense | g. Nontemporary differences |
| h. Provision allows use | h. When enacted law rate changes, same as related assets or liability |
| i. Proposed change in rates | i. 'More likely than not' test |
| j. Balance sheet classifications individual tax consequences financial statement components | j. Int-period tax allocation |
| k. Income tax expense | k. Negative taxable income |

6-29
Financial statement

1. 19

The following income statement data out reflect unapportioned tax allocation

Required:

Recast the income statement to reflect unapportioned tax allocation.

INCOME STATEMENT
For the Fiscal Year Ended March 31, 2004
(\$ in millions)

| | |
|--|-------|
| Revenues | \$830 |
| Cost of goods sold | (350) |
| Gross profit | 480 |
| Operating expenses | (180) |
| Income tax expense | (85) |
| Income before discontinued operations and extraordinary item | 125 |
| Discontinued operations | 0 |
| Extraordinary items | 75 |
| Net income | \$125 |

The company's tax rate is 40%.

6-30
Multiple-choice: CMA
can deferred taxes

1. LOB 175

The following questions dealing with deferred taxes are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

- Which one of the following temporary differences will result in a deferred tax asset?
 - Use of the straight-line depreciation method for financial statement purposes and the modified Accelerated Cost Recovery System (MACRS) for income tax purposes.
 - Current depreciation deduction on the accrual basis for financial statement purposes and the cash basis for income tax purposes.
 - Advance rental receipts accounted for on the accrual basis for financial statement purposes and the cash basis for tax purposes.
 - Unrealized gains on investments under the equity method for financial statement purposes and under the cost method for income tax purposes.

Questions 2 and 3 are based on the following information. Bearings Manufacturing Company Inc. purchased a new machine in January 1, 2012 for \$100,000. The company uses the straight-line depreciation method with an estimated equipment life of 3 years and a zero salvage value for financial statement purposes, and uses the 3-year Modified Accelerated Cost Recovery System (MACRS) with an estimated equipment life of 3 years for income tax reporting purposes. Bearings is subject to a 24% corporate income tax rate. Assume that the deferred tax liability at the beginning of the year is zero and that Bearings has a positive earnings tax position. The MACRS depreciation rates for 3-year equipment are shown below.

| Yr. | Rate |
|-----|--------|
| 1 | 33.33% |
| 2 | 44.44% |
| 3 | 16.67% |
| 4 | 7.4% |

2. What is the deferred tax liability at December 31, 2007 (rounded to the nearest whole dollar)?
- \$ 7,000
 - \$ 5,000
 - \$ 3,000
 - \$ 0
3. For Boerjeps Manufacturing Company Inc., ensure that the following new corporate income taxes will go into effect:

| | |
|-----------|-----|
| 2008–2010 | 40% |
| 2011 | 45% |

What is the amount of the deferred tax asset/liability at December 31, 2007 (rounded to the nearest whole dollar)?

- \$0
- \$0,000
- \$ 7,000
- \$6,112

PROBLEMS

An alternate exercise and problem set is available on the text website www.mhhe.com/epc2ed06.

P 16-1

Determine deferred tax assets and liabilities

■ LO1, LO2

Company E's well-reported taxable income in 2006 was \$ 20 million. At December 31, 2006, the reported assets and liabilities at the annual statement differed from their tax bases as indicated below:

| | Carrying Amount | Tax Basis |
|---|-----------------|---------------|
| Assets | | |
| Current | | |
| Accounts receivable (net of allowance) | \$ 10 million | \$ 12 million |
| Prepaid insurance | 20 million | 0 |
| Prepaid rent expense (operating lease) | 5 million | 0 |
| Noncurrent | | |
| Buildings and equipment (net) | 360 million | 280 million |
| Liabilities | | |
| Current | | |
| Liability—subscriptions received | 14 million | 0 |
| Long-term | | |
| Liability—pension/benefits | 594 million | 0 |
| Shareholders' Equity | | |
| Unrealized gain from recording investments available for sale at fair market value ^a | 4 million | 0 |
| <small>(a) All other measurements are equal.</small> | | |

The total deferred tax asset and deferred tax liability amounts at January 1, 2006, were \$250 million and \$150 million, respectively. The enacted tax rate is 40% each year.

Required:

- Determine the 2006 deferred tax asset and deferred tax liability amounts at December 31, 2006.
- Determine the increase (decrease) in the deferred tax asset and deferred tax liability amounts at December 31, 2006.
- Determine the income tax payable currently for the year ended December 31, 2006.
- Prepare the journal entry to record income taxes for 2006.
- Show how the deferred tax amounts should be classified and reported in the 2006 balance sheet.

Times-Roman Publishing Company reports the following amounts in its first three years of operation:

| (in \$,000s) | 2006 | 2007 | 2008 |
|---------------------------|-------|-------|-------|
| Pre-tax accounting income | \$250 | \$240 | \$230 |
| Taxable income | 290 | 220 | 260 |

The difference between pretax accounting income and taxable income is due to subscription revenue on one-year magazines subscriptions being reported for tax purposes in the year received, but reported in its income statements in later years when delivered. The enacted tax rate is 40% each year. Times-Roman anticipates profitable operations in the future.

P 16-2

Temporary difference determines deferred tax amount for three years, balance sheet classification

■ LO1, LO2

Required:

- What is the balance sheet account for which a temporary difference is created by this situation?
- For each year, indicate the cumulative amount of the temporary difference at year-end. Determine the balance in this related deferred tax account at the end of each year. Is it a deferred tax asset or a deferred tax liability?
- How should the deferred tax amount be classified and reported on the balance sheet?

Dixon Development began operations in December 2006. When lots for subdivision development are sold, Dixon recognizes income for financial reporting purposes in the year of the sale. For some lots, Dixon recognizes income for tax purposes when collected. Income recognized for financial reporting purposes in 2006 for lots sold this way was \$17 million, which will be collected over the next three years. Scheduled collections for 2007, 2008, and 2009 are as follows:

| | |
|------|--------------|
| 2007 | \$ 4 million |
| 2008 | 5 million |
| 2009 | 8 million |
| | \$12 million |

Pretax accounting expense for 2006 was \$16 million. The enacted tax rate is 40%.

Required:

- Assuming no differences between accounting income and taxable income other than those described above, prepare the journal entry to record income taxes for 2006.
- Suppose a new law, reversing the tax rate from 40% to 35% beginning in 2007, is enacted in 2007 when pretax accounting income was \$15 million. Prepare the appropriate journal entry to record income taxes in 2007.
What new liability (or asset) has been created, and what would have been the appropriate balance in the related tax liability account at the end of 2007? Why?

Zakary Corporation will have had to recognize income taxes on its income tax return and income statement for the year 2006 that differ from the expense for financial reporting purposes. The total will be \$20,000, and is depicted in the following amounts:

| | |
|------|----------|
| 2006 | \$20,000 |
| 2007 | 22,000 |
| 2008 | 18,000 |
| 2009 | 9,000 |

The operations asset has a four-year life and no residual value. The straight-line method is used for financial reporting purposes.

Income amounts before depreciation expense and income taxes for each of the four years were as follows:

| | 2006 | 2007 | 2008 | 2009 |
|---|----------|----------|----------|----------|
| Accounting income before taxes and depreciation | \$60,000 | \$80,000 | \$70,000 | \$90,000 |

Assume the average and marginal income tax rate for 2006 and 2007 was 30%; however, during 2007 tax legislation was passed to raise the tax rate to 40% beginning in 2008. The 40% rate remained in effect through the years 2008 and 2009. Both the accounting and income tax periods end December 31.

Required:

Prepare the journal entries to record income taxes for the years 2006 through 2009.

The DeVille Company reported pretax accounting income on its income statement as follows:

| | |
|------|-----------|
| 2006 | \$250,000 |
| 2007 | 270,000 |
| 2008 | 340,000 |
| 2009 | 380,000 |

Included in the income of 2006 was an installment sale of property in the amount of \$30,000. However, for tax purposes, DeVille reported the amount of the year sale was collected. Cash collected on the installment sale was \$20,000 in 2007, \$25,000 in 2008, and \$5,000 in 2009.

Included in the 2008 income was \$15,000 interest from investments in municipal bonds.

The enacted tax rate for 2006 and 2007 was 30%; but during 2007 new tax legislation was passed reducing the tax rate to 25% for the years 2008 and beyond.

Required:

Prepare the year-end journal entries to record income taxes for the years 2006–2009.

P 16-5

Multiple temporary differences; multiple tax rates; balance sheet classification

LO1, LO2

The following information relates to Plam, a report company.

- Plam's accounting income was \$41 million and taxable income was \$8 million for the year ended December 31, 2006.
- Temporary differences at December 31, 2006, were related to:

| | Future Taxable (Deductible) Amounts | |
|--|-------------------------------------|-------------|
| Depreciation | 2007 | 150 million |
| | 2008 | 50 million |
| | 2009 | 40 million |
| | | 340 million |
| Prepaid insurance, 2007, coverage with contingency, to be paid in 2008 | | 9 million |
| | | 6 million |

- No temporary differences existed at the beginning of 2006.

- The tax rate is 40%.

Required:

- Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.
- How should the deferred tax amounts be classified in a classified balance sheet?
- Assume the enacted Federal income tax law specifies that the tax rate will change from 40% to 30% at 2008. Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.

P 16-7

Multiple temporary differences; nontemporary difference; calculate taxable income; balance sheet classification

LO1, LO2, LO4, LO6, LO8

Sherrod, Inc., reported pretax accounting income of \$76 million for 2006. The following information relates to differences between pretax accounting income and taxable income.

- Pretax accounting income of \$76 million included in pretax accounting income in 2006 included the reported net gain (loss) on the sale of the installment receivable account (a receivable balance of \$4 million representing portions of 2005 and 2006 installment sales), reported to be collected equally, in 2005 and 2006.
- Sherrod was assessed a penalty of \$4 million by the Environmental Protection Agency for violating a rule in 2006. The fine will be paid in 2006 and 2007.
- Sherrod rents its operating facilities but owns one asset acquired in 2003 at a cost of \$80 million. Depreciation is reported by the straight-line method assuming a four-year useful life. On the tax return, deductions for depreciation will be more than straight-line depreciation the first two years but less than straight-line depreciation the next two years (\$8 million).

| | Income Statement | Tax Return | Difference |
|------|------------------|------------|------------|
| 2005 | \$20 | \$26 | \$ (6) |
| 2006 | 20 | 35 | (15) |
| 2007 | 20 | 12 | 8 |
| 2008 | 20 | 7 | 13 |
| | \$80 | \$80 | \$ 0 |

- Bad debt expense is reported using the allowance method, \$3 million in 2006. For tax purposes, the expense is deducted when accounts prove uncollectible (the direct write-off method), \$2 million in 2006. At December 31, 2006, the allowance for uncollectible accounts was \$2 million (after charge entries). The balance was \$1 million at the end of 2005.
- In 2006, Sherrod accrued an expense and related liability for estimated paid future absences of \$7 million relating to the company's new paid vacation program. Future compensation will be deductible on the tax return when actually paid during the next two years: \$4 million in 2007, \$3 million in 2008.
- During 2005, accounting income included an estimated loss of \$3 million from having awarded a contingency. The loss is paid in 2006 at which time it is tax deductible.

Balances in the deferred tax asset and deferred tax liability accounts at January 1, 2006, were \$1.2 million and \$2.8 million, respectively. The enacted tax rate is 40% each year.

Required:

- Determine the amounts necessary to record income taxes for 2006 and prepare the appropriate journal entry.
- What is the "2006 net income"?
- Show how any deferred tax accounts should be classified and reported in the 2006 balance sheet.

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

| | 2005 | 2006 |
|---|-------|-------|
| Revenues | \$438 | \$483 |
| Expenses | 140 | 100 |
| Pretax accounting income (pre-taxable income) | \$128 | \$183 |
| taxable income (per return) | \$120 | \$200 |

Required

- Arndt Inc. includes a \$10 million term life insurance policy purchased in 2005. The policy will pay \$1 million to Arndt Inc. upon its death.
- Expenses include \$2 million insurance premiums each year for life insurance on key executives.
- Arndt sells one-year subscriptions to a weekly journal. Subscriptions sales collected and taxable in 2005 and 2006 were \$3 million and \$7 million, respectively. Subscriptions included in 2005 and 2006 annual reporting revenues were \$25 million (\$30 million collected in 2004 but not earned until 2005) and \$33 million, respectively. Arndt views this as two temporary differences—some reversing in 2005 and some reversing in 2006.
- 2005 expenses included a \$5.7 million unrealized loss from reducing investments collected as trading securities and value. The loss was reversed in 2006.
- During 2004, accounting records included an estimated loss of \$5 million from having secured a loss contingency. The loss was paid in 2005 at which time it is tax deductible.
- At January 1, 2005, Arndt had a deferred tax asset of \$4 million and no deferred tax liability.

Required

- Which of the five differences described are temporary and which are nontemporary differences? Why?
- Prepare a schedule that (a) reconciles the difference between pretax accounting income and taxable income and (b) determines the amounts necessary to record income taxes for 2005. Prepare the appropriate journal entry.
- Show how any 2005 deferred tax amounts should be classified and reported on the 2005 balance sheet.
- Prepare a schedule that (a) reconciles the difference between pretax accounting income and taxable income and (b) determines the amounts necessary to record income taxes for 2006. Prepare the appropriate journal entry.
- Explain how any 2006 deferred tax amounts should be classified and reported on the 2006 balance sheet.

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

| | Service Revenue | Collection | Pretax Accounting Income |
|------|-----------------|------------|--------------------------|
| 2005 | \$60,000 | \$60,000 | \$100,000 |
| 2006 | 70,000 | 70,000 | 250,000 |
| 2007 | 75,000 | 70,000 | 280,000 |
| 2008 | 70,000 | 70,000 | 200,000 |

There are no differences between accounting income and taxable income other than the temporary differences described above. The enacted tax rate for each year is 40%.

Required

- Prepare the appropriate journal entry to record Arndt's 2005 income taxes.
 - Prepare the appropriate journal entry to record Arndt's 2006 income taxes.
 - Prepare the appropriate journal entry to record Arndt's 2007 income taxes.
- Hint: You may find it helpful to prepare a schedule that shows the balances in service revenue receivable at December 31, 2005–2008.

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

Arndt Inc. reported the following for 2005 and 2006 (\$ in millions):

| | |
|------|--------------|
| 2004 | \$75 million |
| 2005 | 10 million |

Required

Excel

P 18-11
Integrating problem
bonds; leases; taxes

12-10-10

Excel

Required:

1. Prepare the journal entry to recognize the income tax benefit of the operating loss in 2006. Entry debit the tax benefit up to
2. Show the lower portion of the 2006 income statement that reports the income tax benefit of the operating loss.
3. Prepare the journal entry to record income taxes in 2007 assuming pretax accounting income is \$4 million. No additional temporary differences originate in 2007.

The following is the long-term liabilities section of Tempo Co.'s December 31, 2005, balance sheet:

Long-Term Liabilities

| | | |
|--|----------|-------------------|
| Notes payable—bank: 15 principal payments of \$5,000, plus 10% interest due annually on September 30 | \$75,000 | |
| Less current portion | (5,000) | \$ 70,000 |
| Capital lease obligation—16 payments of \$9,000 due annually on January 1 | \$72,000 | |
| Less current portion | (9,340) | \$ 62,660 |
| Deferred income tax liability | | \$ 750 |
| Total long-term liabilities | | \$ 133,410 |

- a. Tempo's incremental borrowing rate on the date of the lease was 11% and the relevant implicit rate, which was known by Tempo, was 10%.
- b. The only difference between Tempo's taxable income and pretax accounting income is depreciation on a machine acquired on January 1, 2005, for \$250,000. The machine's estimated useful life is five years with no salvage value. Depreciation is computed using the straight-line method for financial reporting purposes and the MACRS method for tax purposes. Depreciation expense for tax and financial reporting purposes for 2006 through 2009 is as follows:

| Year | Tax Depreciation | Financial Depreciation | Tax Depreciation Over (Under) Financial Depreciation |
|------|------------------|------------------------|--|
| 2006 | \$60,000 | \$50,000 | \$ 10,000 |
| 2007 | 40,000 | 50,000 | (10,000) |
| 2008 | 15,000 | 50,000 | (35,000) |
| 2009 | 30,000 | 50,000 | (20,000) |

The enacted federal income tax rates are 30% for 2005 and 2006, and 31% for 2007 through 2009 included in Tempo's December 2005 balance sheet was a deferred tax asset of \$9,000.

- a. For the year ended December 31, 2006, Tempo's income before income taxes was \$4,400,000.
- b. On July 1, 2006, Tempo received proceeds of \$492,725 from a \$500,000 bond issuance. The bond matures in 10 years and interest of 7% is payable each January 1 and July 1. The bonds were issued at a price to yield the investors 12%. Tempo uses the effective interest method to amortize the 4% discount.

Required:

1. Prepare a schedule showing Tempo's income before income taxes, current income tax expense, deferred income tax expense, and net income for 2006. Show supporting calculations for current and deferred income tax amounts.
2. Prepare a schedule showing the calculations of Tempo's interest expense for the year ended December 31, 2006.
3. Prepare the long-term liabilities section of Tempo's December 31, 2006, balance sheet. Show supporting calculations.

AP®/CPA® adapted

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You should work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Interpretation 2-100
 10-8
 Accounting for income taxes in other countries
 = 100, 102, 104, 106

Interpretation 2-100
 Accounting for income taxes in other countries
 = 100

Interpreting Case 4-6
 Income taxes and investment securities
 = 100, 102, 104, 106

Read the income statement in Exhibit 10-1 and answer the following questions. The questions are based on the information in the income statement and the balance sheet.

The primary objective of the financial statements is to provide information about the company's financial position, performance, and cash flows. The primary objective of the financial statements is to provide information about the company's financial position, performance, and cash flows.

1. Determine the way that income is reported in the income statement. 2. Determine the way that income is reported in the income statement. 3. Determine the way that income is reported in the income statement. 4. Determine the way that income is reported in the income statement. 5. Determine the way that income is reported in the income statement.

The following is a portion of the 2004 balance sheet of Southwest Airlines.

| | 2004 | 2003 |
|--|-----------------|----------------|
| Liabilities and Stockholders' Equity | | |
| Current liabilities | | |
| Accounts payable | \$ 420 | \$ 406 |
| Accrued liabilities | 1,047 | 650 |
| Air traffic liability | 529 | 462 |
| Current maturities of long-term debt | 146 | 206 |
| Total current liabilities | 2,142 | 1,724 |
| Long-term debt less current maturities | 1,700 | 1,511 |
| Deferred income taxes | 164 | 420 |
| Deferred gains from sale and leaseback of aircraft | 52 | 158 |
| Other deferred liabilities | 209 | 165 |
| Commitments and contingencies | | |
| Stockholders' equity: | | |
| Common stock, \$1 par | 790 | 724 |
| Capital in excess of par | 299 | 238 |
| Retained earnings | 4,094 | 3,511 |
| Accumulated other comprehensive income | 417 | 2 |
| Treasury stock | (21) | — |
| Total stockholders' equity | \$11,337 | \$9,874 |

Southwest's debt to equity ratio was 1.03, calculated as $\$1,700 \div \$1,656$. Some analysts argue that the term deferred tax liabilities should be excluded from liabilities when computing the debt to equity ratio.

1. What is the rationale for the argument that long-term deferred tax liabilities should be excluded from liabilities when computing the debt to equity ratio?
2. What would be the effect on Southwest's debt to equity ratio of excluding deferred tax liabilities from its liabilities? What would be the new debt to equity ratio?
3. What might be the rationale for not excluding long-term deferred tax liabilities from liabilities when computing the debt to equity ratio?

The Wrigley Company is the world's largest manufacturer of chewing gum. The following excerpt appeared in Wrigley's 2004 annual report.

INVESTMENTS IN DEBT AND EQUITY SECURITIES (IN \$ MIL.)
 The Company's investments in marketable securities are held for an indefinite period. Applicable Statement of Financial Accounting Standards No. 32, "Accounting for Certain Investments,"

and Equity Securities." resulted in realized holding gains of \$ 5.35 at December 31, 2004, and \$24.355 at December 31, 2005. Unrecognized holding gains, net of the related tax effect of \$9.079 and \$9.46 at December 31, 2004 and 2005, respectively, are included as components of Accumulated Other Comprehensive Income in Starbucks' equity.

Required

- Explain how investment securities available for sale are accounted for.
- What entries have been Wrigley's journal entry to reflect the 2004 fair value of the investments?

Chris Lopez, CPA, is auditing Rayne Co.'s 2006 financial statements. The controller, Don Dunn, has provided Lopez with the following information:

- At December 31, 2005, Rayne had notes payable to Federal Bank with a balance of \$48,000. The annual principal payment of \$7,000 plus 8% interest on the unpaid balance was paid when due on May 1.
 - On June 1, 2006, Rayne leased a truck for 24 months at a rate of \$400 per month. The lease is for the term of 24 months, with the first payment due on June 1, 2006. The lease was properly recorded at \$400 before the first payment was made.
 - On July 1, 2006, Rayne received proceeds of \$5,000 from a \$5,000 bond issuance. The bonds mature in 5 years and interest of 8% is payable semiannually on June 30 and December 31. The bonds were issued at a price 10% above the 10% Rayne uses the effective interest method to amortize bond premium.
 - For the year ended December 31, 2006, Dunn has prepared a schedule of all differences between financial statement and income tax return income. Dunn believes that as a result of pending legislation, the enacted tax rate as December 31, 2006 will be increased for 2007. Dunn is uncertain which differences to include and which rate to apply in computing deferred taxes under SFAS 109. Dunn has requested an overview of SFAS 109 from Lopez.
- Prepare a schedule of interest expense for the year ended December 31, 2006.
 - Explain how to measure deferred tax assets and liabilities.
 - Explain how to measure deferred income tax expense or benefit.

Williams-Sonoma, Inc., is a manufacturer of high-tech industrial parts that was started in 1994 by two talented engineers with little business training. In 2006, the company was acquired by one of its major customers. As part of an internal audit, the following facts were discovered. The audit occurred during 2006 before any adjusting entries or closing entries were prepared. The income tax rate is 40% for all years.

- A five-year casualty insurance policy was purchased at the beginning of 2004 for \$35,000. The full amount was debited as insurance expense at the time.
- On December 31, 2005, merchandise inventory was overstated by \$25,000 due to a mistake in the physical inventory count using the periodic inventory method.
- The company changed its revenue recognition method from FIFO to LIFO at the end of 2006 for both financial statement and income tax purposes. The change will cause a \$900,000 increase in the beginning inventory at January 1, 2007.
- At the end of 2005, the company failed to accrue \$75,000 of sales commissions earned by employees during 2005. The expense was recorded when the commissions were paid in early 2006.
- At the beginning of 2004, the company purchased a machine at a cost of \$720,000. Its useful life was estimated to be 10 years with no salvage value. The machine has been depreciated by the double-declining-balance method. Its carrying amount on December 31, 2005, was \$480,000. On January 1, 2006, the company changed to the straight-line method.
- Williams-Sonoma industrial robots were acquired at the beginning of 2003 and added to the company's assembly process. The \$1,000,000 cost of the equipment was inadvertently recorded as repair expense. The 10-year useful lives and no salvage value. This class of equipment is depreciated by the straight-line method for both financial reporting and income tax reporting.

PROBLEM 16-10

- Identify whether it represents an accounting change or an error. If an accounting change, identify the type of change.

Real World Case 16-9

Disclose assets;
balance sheet
liabilities

4. 102 L08

2. Prepare any journal entry necessary as a direct result of the change or error correction as well as a reversing entry for 2006 related to the situation described. Any net effects should be shown through the deferred tax liability account.
3. Briefly describe any other steps that should be taken to appropriately report the situation.

The income tax disclosure note accompanying the 2004 financial statements of the Walgreen Company is reproduced below:

Income Taxes

Our provision for income taxes consists of the following (in millions):

| | 2004 | 2003 | 2002 |
|--------------------|---------|---------|---------|
| Current provision | | | |
| Federal | \$632.5 | \$574.0 | \$510.7 |
| State | 4 | 80 | 65.0 |
| | 743.9 | 654.1 | 595.2 |
| Deferred provision | | | |
| Federal | 7 | 48.4 | 24.0 |
| State | 1.1 | 0.3 | (1) |
| | 2.2 | 58.9 | 22.9 |
| | \$816.1 | \$713.0 | \$618.1 |

The deferred tax assets and liabilities included in the consolidated balance sheets consist of the following (in millions):

| | 2004 | 2003 |
|------------------------------|---------|---------|
| Deferred tax assets | | |
| Employee benefit plans | \$212.0 | \$181.3 |
| Accrued rent | \$2.8 | 56.1 |
| Miscellaneous | 136.0 | 108.0 |
| Inventory | 39.6 | 29.1 |
| Bad debt | 15.4 | 10.2 |
| Other | 29.4 | 34.7 |
| | 454.9 | 419.4 |
| Deferred tax liabilities | | |
| Accelerated depreciation | 621.5 | 486.2 |
| Inventory | 515.1 | 03.0 |
| Other | 8.6 | 28.3 |
| | 1145.2 | 517.5 |
| Net deferred tax liabilities | \$270.3 | \$198.1 |

Income taxes paid were \$734.7 million, \$625.2 million and \$528.0 million during the fiscal years ended August 31, 2004, 2003 and 2002, respectively. The difference between the statutory income tax rate and the effective tax rate is principally due to state income tax provisions.

Required:

1. On its 2004 balance sheet, Walgreen reported as a noncurrent liability "Deferred income taxes" \$327.6 million. Why is this different from the \$270.3 million "net deferred tax liability" reported in the disclosure note?
2. Re-create the journal entry that summarizes the entries Walgreen used to record its 2004 income taxes.

The U.S. Treasury maintains an information site on the Internet. As part of this site the Internal Revenue Service provides tax information and services. Among these services is a Service of publications download which allows a visitor to download a variety of IRS forms and publications.

Required:

1. Access the Treasury site on the Internet. The web address is www.irs.gov. After exploring the information available there, navigate to the IRS server for forms and publications via the "Forms" page.
2. Download the corporation tax return, Form 990.
3. Note the specific deductions listed that are deductible from total income to arrive at taxable income. Are any deductions listed that might not also be included among expenses on the income statement?
4. One of the deductions indicated is "net operating loss deduction." Under what circumstances can a company report an amount for this item?
5. Based on how taxable income is determined, how might temporary differences be created between taxable income and pretax income on the income statement?

Research Case 16-10

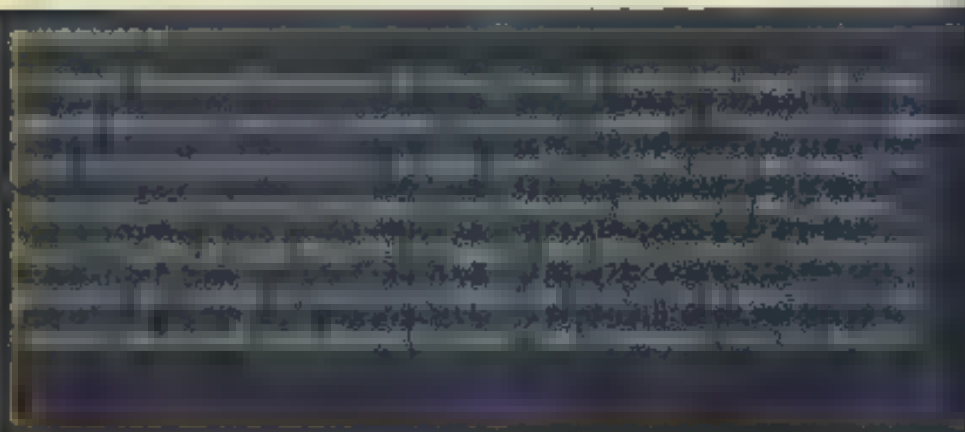
Researching the way
tax deductions are
reported on a
corporation tax return;
retrieving a tax form
from the Internet

4. 102 L03 L06

17

CHAPTER

Pensions and Other Postretirement Benefits



After studying this chapter, you should be able to:

- LO1 Explain the fundamental differences between a defined contribution pension plan and a defined benefit pension plan.
- LO2 Distinguish among the vested benefit obligation, the accumulated benefit obligation, and the projected benefit obligation.
- LO3 Determine the level over which an event might change the balance of the PBO.
- LO4 Explain how plan assets accumulate to provide future benefits and understand the role of the actuary in administering the fund.
- LO5 Describe the insured status of pension plans and how that amount is reported.
- LO6 Describe how pension expense is a composite of periodic changes that occur in both the pension obligation and the plan assets.
- LO7 Recalculate pension plans the periodic expense as funding as well as new gains and losses and new prior service cost as they occur.
- LO8 Understand the interrelationships among the elements that constitute a defined benefit pension plan.
- LO9 Describe the nature of postretirement benefits other than pensions and identify the similarities and differences in accounting for those plans and pensions.
- LO10 Explain how the obligation for postretirement benefits is measured and how the obligation changes.
- LO11 Determine the components of postretirement benefit expense.

FINANCIAL REPORTING CASE

United Dynamics



You read yesterday that many companies in the United States have pension plans that are severely underfunded. This caught your attention in part because you have your office interview tomorrow with United Dynamics. You hadn't really thought that much about the pension plan of your potential future employer, in part because your current employer has a defined contribution 401K plan, for which funding is not a concern. However, United Dynamics is an older firm with a defined benefit plan, for which funding is the employer's responsibility.

To prepare for your interview, you obtained a copy of United Dynamics' financial statements. Unfortunately, the financial statements themselves are of little help. You are unable to find any pension liability on the balance sheet, but the statement does report a relatively small "pension asset." The income statement reports pension expense for each of the years reported. For help, you search the disclosure notes. In part, the pension disclosure note reads as follows:

Note 7: Pension Plan

United Dynamics has a defined benefit pension plan covering substantially all of its employees. Plan benefits are based on years of service and the employee's compensation during the last three years of employment. The company's funding policy is consistent with the funding requirements of federal law and regulations. The net periodic pension expense for the company included the following components. The company's pension expense was as follows: (\$ in millions)

| | 2007 | 2006 | 2005 |
|---|--------------|--------------|--------------|
| Weighted average costs | \$ 43 | \$ 47 | \$ 42 |
| Interest cost on projected benefit obligation | 78 | 164 | 152 |
| Return on assets | (2.3) | (154) | (87) |
| Amortization of prior service cost | 43 | 43 | 43 |
| Amortization of net gain | (2) | — | — |
| Net pension costs | <u>\$ 40</u> | <u>\$ 56</u> | <u>\$ 40</u> |

The following table describes the change in projected benefit obligation over the years ended December 31, 2007 and December 31, 2006 (\$ in millions):

| | 2007 | 2006 |
|---|----------------|---------------|
| Projected benefit obligation at beginning of year | \$2.34 | \$1.7 |
| Service cost | 47 | 4 |
| Interest cost | 78 | 63 |
| Actuarial (gain) loss | — | (41) |
| Benefits paid | (61) | (61) |
| Projected benefit obligation at end of year | <u>\$2,479</u> | <u>\$1.93</u> |

The weighted-average discount rate and rate of increase in the compensation levels used in determining the actuarial present value of the projected benefit obligations in the above table were 8.1% and 4.3%, respectively.

(continued)

(continued)

at December 31, 2007, and 1.31% and 1.1% respectively at December 31, 2006. The weighted average of the weighted average rates for the periods ended December 31, 2007 and 2006

The following table describes the change in the fair value of the assets of the plan years ended December 31, 2007 and 2006 (in millions):

| | 2007 | 2006 |
|--|---------|---------|
| Fair value of plan assets at beginning of year | \$5,447 | \$2,143 |
| Actual return on plan assets | 7.1 | 8 |
| Contributions | 25 | 6 |
| Benefits paid | (26) | (14) |
| Fair value of plan assets at end of year | \$5,447 | \$2,143 |

"What I can believe is how much of my pensioning budget is required to fund it. I'd like to get out my job and get out of the pensioning budget."

By the time you finish this chapter, you should be able to answer appropriately the questions posed in this case. Compare your responses to the solutions provided at the end of the chapter.

Case Study

- Why is underfunding not a concern in your pension employer? (page 83)
- How do you estimate the pension liability? Is it reported on the balance sheet? What is the liability? (page 83)
- What is the amount of the plan assets available to pay liabilities? Who are the parties that can cause the amount to change? (page 83-84)
- What is the pension liability? Is it reported on the balance sheet? (page 84)
- How is the pension liability affected by changes in the fair value of the plan assets? (page 84)

PART A THE NATURE OF PENSION PLANS

Over 60 million American workers are covered by pension plans. The United States pension funds tripled in size during the previous two decades and now are roughly the size of Japan's gross national product. This powerful investment base now controls about one-fourth of the stock market. At the company level, the enormous size of pension funds is reflected in a periodic pension cost that constitutes one of the largest expenses many corporations incur. The corporate liability for providing pension benefits, though largely off-balance sheet, looms large. Obviously, then, the financial reporting responsibility for pensions has important consequences for employers.

Pension plans are designed to provide income to individuals during their retirement years. This is accomplished by setting aside funds during an employee's working years so that retirement the accumulated funds plus earnings from investing those funds are available to replace wages. Actually, an individual who periodically invests in stocks, bonds, certificates of deposit (CDs), or other investments for the purpose of saving for retirement is establishing a personal pension fund. Often such individual plans take the form of individual retirement accounts (IRAs) or take advantage of tax breaks offered by that arrangement. In employer plans, some or all of the periodic contributions to the retirement fund often are provided by the employer.

Corporations establish pension plans for a variety of reasons. Sponsorship of pension plans provides employees with a degree of retirement security and fulfills a moral obligation felt by many employers. This security also can produce a degree of job satisfaction and

When an employee is hired, the employer usually sets up a pension plan for the employee. The employer contributes to the plan, and the employee also contributes. The employer's contributions are usually based on the employee's salary. The employee's contributions are usually based on the employee's salary. The employer's contributions are usually based on the employee's salary. The employee's contributions are usually based on the employee's salary.

perhaps loyalty that might enhance productivity and reduce turnover. Motivation to sponsor a plan sometimes comes from union demands and often results in being competitive in the labor market.

ADDITIONAL CONSIDERATION

When established according to tight guidelines, a pension can gain important tax advantages. Such arrangements are called qualified plans because of their favorable tax treatment. In a qualified plan, the employer's deduction for amounts paid into the pension plan, within limits, and the other hand, are not taxed at the time employees receive retirement benefits are received. Moreover, earnings on the employer are not taxed while in the pension fund. If you are familiar with the tax advantages of IRAs, you probably recognize the similarity between these individual plans and corporate pension arrangements.

For a pension plan to be qualified for special tax treatment, it must meet these general requirements:

1. It must cover at least 70% of employees.
2. It cannot discriminate in favor of highly compensated employees.
3. It must be funded in advance of retirement through contributions to an irrevocable trust fund.
4. Benefits must vest after a specified period of service, commonly five years. (We discuss this in more detail later.)
5. It complies with specific restrictions on the timing and amount of contributions and benefits.

Qualified pension plans are subject to certain tax benefits.

Sometimes, employers agree to annually contribute a specific (defined) amount to a pension fund on behalf of employees but make no commitment regarding benefit amounts at retirement. In other arrangements, employers set up a plan in which the total of annual contributions is limited, but the actual benefit amounts at retirement are not defined. These two arrangements are the defined contribution pension plans and defined benefit pension plans, respectively.

- **Defined contribution pension plans** promise fixed annual contributions to a pension fund, say, 5% of the employee's pay. Employees choose (from designated options) where funds are invested—usually stocks or fixed-income securities. Retirement pay depends on the size of the fund at retirement.
- **Defined benefit pension plans** promise fixed retirement benefits defined by a designated formula. Typically, the pension formula bases retirement pay on the employee's (a) years of service, (b) annual compensation (either final pay or an average for the last few years), and sometimes (c) age. Employers are responsible for ensuring that sufficient funds are available to provide promised benefits.

Today, more than two-thirds of workers covered by pension plans are covered by defined contribution plans, fewer than one-third by defined benefit plans. This represents a radical shift from previous years when the traditional defined benefit plan was far more common. Indeed, very few new pension plans are of the defined benefit variety. In fact, many companies are terminating long-standing defined benefit plans and substituting defined contribution plans. Why the shift? There are three main reasons:

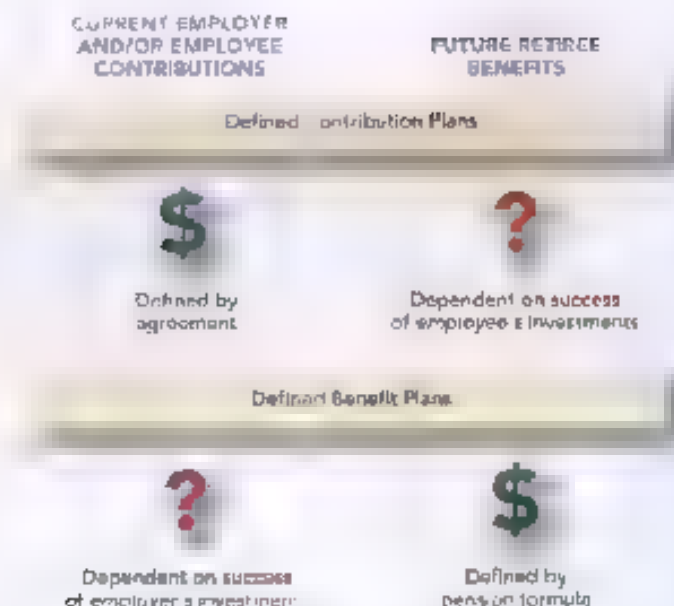
1. Government regulations make defined benefit plans cumbersome and costly to administer.
2. Employers are increasingly unwilling to bear the risk of defined benefit plans; with defined contribution plans, the company's obligation ends when contributions are made.
3. There has been a shift among many employers from trying to "buy long-term loyalty" (with defined benefit plans) to trying to attract new talent (with more flexible defined contribution plans).

LO1

Virtually all new pension plans are defined contribution plans.

GRAPHIC 17-1

Defined Contribution
and Defined Benefit
Pension Plans



The two categories of pension plans are depicted in Graphic 17-1.

Both types of plans have a common goal: to provide income to employees during their retirement years. Still, the two types of plans differ regarding who bears the risk—the employer or the employees—for whether the retirement objectives are achieved. The two types of plans also have entirely different implications for accounting and financial reporting. In discussion of defined contribution plans will be brief. Although these are now the most popular type of corporate pension plan, their relative simplicity permits a rather straightforward accounting treatment that requires little explanation. On the other hand, defined benefit plans require considerably more complex accounting treatment and constitute the primary focus of this chapter.

Defined Contribution Pension Plans

Defined contribution pension plans are becoming increasingly popular vehicles for employers to provide retirement income without the paperwork, cost, and risk generated by the more traditional defined benefit plans. Defined contribution plans promise fixed periodic contributions to a pension fund. Retirement income depends on the size of the fund at retirement. No further commitment is made by the employer regarding benefit amounts at retirement.

These plans have several variations. Money purchase plans, in which employers contribute a fixed percentage of employees' salaries. Profit plans, savings plans, and 401(k) plans—since after the Tax Code revision that specifies the conditions for the favorable tax treatment of these plans) permit voluntary contributions by employees. These contributions are often matched to a specified extent by employers. Over 70% of American workers participate in 401(k) plans. More than two trillion dollars are invested in these plans.

When plans link the amount of contributions to company performance, labels include profit-sharing plans, incentive savings plans, 401(k) profit-sharing plans, and similar titles. When employees make contributions to the plan in addition to employer contributions, called a *contributory plan*. Sometimes the amount the employer contributes is determined as a percentage of the employee contribution. Variations are seemingly endless. An example from recent annual report of **Cisco Systems** is re-created in Graphic 17-2.

Defined contribution plans promise defined periodic contributions to a pension fund without further commitment regarding benefit amounts at retirement.

As with all other types of pension plans, defined contribution plans are subject to the same rules as defined benefit plans. The employer is responsible for the plan's solvency.



Note 10: Employee Benefit Plans (in part)

Employee 401(k) Plans By making regular deferrals to a 401(k) Plan, employees can take advantage of the tax advantages that all workers have. In a 401(k) Plan, employees can defer up to \$15,000 of their salary each year (or \$18,000 if they are 50 or older) into a tax-deferred investment account. The employer can also contribute to the plan, and the contributions are not taxed until they are withdrawn. Employees can also borrow from the plan, and the loan is not taxed until it is repaid. Employees can also roll over their 401(k) Plan into an IRA when they leave the company.

GRAPHIC 17-2

Defined Contribution Plan—Cisco Systems

Accounting for these plans is quite easy. Each year, the employer simply records pension expense equal to the amount of the annual contribution. Suppose a plan promises an annual contribution equal to 3% of an employee's salary. If an employee's salary is \$110,000 in a particular year, the employer would simply recognize a high rate expense in the amount of \$3,300.

| | |
|---------------------------|-------|
| Pension expense | 3,300 |
| Cash (110,000) 3% | 3,300 |

The employee's retirement benefits are initially dependent upon how well investments perform. Who bears the risk (or reward) of that uncertainty? The employee would bear the risk. Uncertain investment returns and, potentially, settle for far less at retirement than at first expected. On the other hand, the employer would be free of any further obligation. Because the actual investments are held by an independent investment firm, the employer is free of any recordkeeping responsibility as well.

Risk is reversed in a defined benefit plan. Because specific benefits are promised at retirement, the employer would be responsible for making up the difference when investment performance is less than expected. We look at defined benefit plans next.

Defined Benefit Pension Plans

When setting aside cash to fund a pension plan, the uncertainty surrounding the rate of return on plan assets is but one of several uncertainties inherent in a defined benefit plan. Employee turnover affects the number of employees who ultimately will become eligible for retirement benefits. The age at which employees will choose to retire as well as life expectancy will impact both the length of the retirement period and the amount of the benefits. Inflation, future compensation levels, and interest rates also have obvious influence on pension benefits.

This is particularly true when pension benefits are defined by a pension formula, as usually is the case. A typical formula might specify that a retiree will receive annual retirement benefits based on the employee's years of service and annual pay at retirement (say, pay level in the final year, highest pay achieved, or average pay in the last two or more years). For example, a pension formula might define annual retirement benefits as:

$$1\% \times \text{Years of service} \times \text{Final year's salary}$$

By this formula, the annual benefits to an employee who retires after 30 years of service with a final salary of \$50,000 would be

FINANCIAL REPORTING CASE

Q1 p. 828

For defined pension plans, the employer must recognize the expense of the pension plan as a liability. The expense is calculated as the difference between the plan's assets and the plan's liabilities.

Defined benefit plans promise fixed retirement benefits defined by a pension formula.

Uncertainties complicate determining how much cash needs to be set aside to ensure that sufficient funds are available to pay the promised benefits.

By this formula, the annual benefits to an employee who retires after 30 years of service with a final salary of \$50,000 would be



A general formula

| Year | Assets | Liabilities | Equity |
|------|--------|-------------|--------|
| 1990 | 100 | 0 | 100 |
| 1991 | 110 | 0 | 110 |
| 1992 | 120 | 0 | 120 |
| 1993 | 130 | 0 | 130 |
| 1994 | 140 | 0 | 140 |
| 1995 | 150 | 0 | 150 |
| 1996 | 160 | 0 | 160 |
| 1997 | 170 | 0 | 170 |
| 1998 | 180 | 0 | 180 |
| 1999 | 190 | 0 | 190 |
| 2000 | 200 | 0 | 200 |
| 2001 | 210 | 0 | 210 |
| 2002 | 220 | 0 | 220 |
| 2003 | 230 | 0 | 230 |
| 2004 | 240 | 0 | 240 |
| 2005 | 250 | 0 | 250 |
| 2006 | 260 | 0 | 260 |
| 2007 | 270 | 0 | 270 |
| 2008 | 280 | 0 | 280 |
| 2009 | 290 | 0 | 290 |
| 2010 | 300 | 0 | 300 |

$$4\% \times 30 \text{ years} \times \$100,000 = \$45,000$$

Typically, a firm will hire an actuary, a professional trained in a particular branch of statistics and mathematics, to assess the various uncertainties (employee turnover, salary increases, mortality, etc.) and to estimate the company's obligation to employees in connection with a pension plan. Such estimates are inherently subjective, so regardless of the skill of the actuary, estimates inevitably deviate from the actual outcome to one degree or another. For instance, if the actual return on assets is lower than expected, these losses are referred to as *gains* and losses on pension assets. When it's necessary to revise a value related to the pension obligation because it's determined to be more or less than previously thought, these revisions are referred to as *losses* and *gains*, respectively, on the pension liability. Later, we will discuss the accounting treatment of gains and losses from either source. The point here is that the risk of the pension obligation changing unexpectedly or the pension funds being inadequate to meet the obligation is borne by the employer with a defined benefit pension plan.

The key elements of a defined benefit pension plan are:

1. The employer's obligation to pay retirement benefits in the future
2. The plan assets set aside by the employer from which to pay the retirement benefits in the future
3. The periodic expense of having a pension plan

As you will learn in this chapter, the first two of these elements are not reported directly in the financial statements. This may seem confusing at first, because it is inconsistent with the way you're accustomed to treating assets and liabilities. Even though they are not recorded in the financial accounts, it's critical that you understand the composition of both the pension obligation and the plan assets because (a) they affect amounts that actually are reported on the balance sheet, and (b) their balances are reported in disclosure notes. In particular, the pension expense reported on the income statement is a direct result of periodic changes that occur in both the pension obligation and the plan assets.

For this reason, we will devote a considerable portion of our early discussion to understanding the composition of the pension obligation and the plan assets before we move on to the calculation of pension expense and the accounting for pension disclosures. We'll begin with a quick overview of how periodic changes that occur in both the pension obligation and the plan assets affect pension expense. Next we will explore how those changes occur (beginning with changes in the pension obligation followed by changes in plan assets). We'll then return to pension expense for a closer look at how those changes influence its calculation. After that, we will bring together the separate but related parts by using a simple spreadsheet to demonstrate how each element of the pension plan articulates with the other elements.

Pension Expense—An Overview

The annual pension expense reflects changes in both the pension obligation and the plan assets. Graphic 17-3 provides a brief overview of how those changes are included in pension expense. After the overview, we'll look closer at each of the components.

Next we explore each of these pension expense components in the context of its being a part of either (a) the pension obligation or (b) the plan assets. After you learn how the expense components relate to these elements of the pension plan, we'll return to explore further how they are included in the pension expense.

In approving actual results in the pension plan, the Board of Directors has approved all expenses of the pension plan, including the recognition of certain events affecting net income and offering benefits for assets. These two items of expense are reported in the financial reporting of the year and only on the income statement with accounting principles applied.

¹We discuss changes in more detail in Chapter 30.

²Employers Accounting For Pensions, Statement of Financial Accounting Standards No. 87 (Fairfield, Conn.: FASB, 1985).

Components of Pension Expense

| |
|--|
| Service cost (attributed to employee service during the period) |
| Interest cost (change in the pension liability) |
| Return on plan assets (loss or gain) |
| Amortized gain or loss of |
| Prior service cost (attributing to employee service the benefit of amendments to plan formula) |
| Losses or (gains) from revisions in the pension liability or from investing plan assets |
| Pension expense |

Interest cost is the increase in the pension liability due to the passage of time. The interest cost is calculated as the beginning pension liability multiplied by the discount rate. The discount rate is the rate used to determine the present value of pension benefits.

GRAPHIC 17-3

Components of Pension Expense

Interest cost (change in the pension liability)

The return on plan assets (loss or gain)

THE PENSION OBLIGATION AND PLAN ASSETS

PART B

The Pension Obligation

Now we consider more precisely what is meant by the pension obligation. Unfortunately, there's not just one definition, nor is there uniformity concerning which definition is most appropriate for pension accounting. Actually, there are three different ways to measure the pension obligation in pension accounting, as shown in Graphic 17-4.

FINANCIAL REPORTING CASE

Case 17-1

| |
|--|
| Accumulated benefit obligation (ABO) The actuarial value of the total retirement benefit that would be paid to employees currently employed by the company, based on the pension formula in effect at the measurement date. |
| Vested benefit obligation (VBO) The portion of the ABO that employees have earned the right to receive regardless of how long they remain employed by the company. |
| Projected benefit obligation (PBO) The actuarial value of the total retirement benefit that would be paid to employees currently employed by the company, based on the pension formula in effect at the measurement date, plus the projected cost of future increases in the pension formula. |

GRAPHIC 17-4

Ways to Measure the Pension Obligation

Later you will learn that the projected benefit obligation is the basis for some elements of the periodic pension expense. Remember, there is not one obligation; there are three ways to measure it. The relationship among the three is depicted in Graphic 17-5.

Now let's look closer at how the obligation is measured in each of these three ways. Keep in mind that it's not the accountant's responsibility to calculate these measures; a professional actuary provides the numbers. Even so, the accountant is responsible for the numbers provided, so she or he must understand their derivation.

LO2

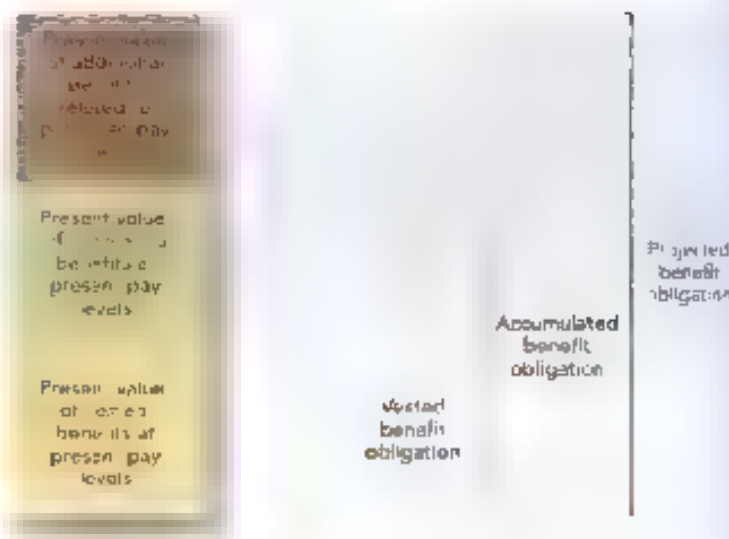
VESTED BENEFIT OBLIGATION

Suppose an employee leaves the company to take another job. Will she still get earned benefits at retirement? The answer depends on whether the benefits are vested under the terms of this particular pension plan. If benefits are fully vested—yes. Vested benefits are those that employees have the right to receive even if their employment were to end today.

Pension plans typically require some minimum period of employment before benefits accrue. Before the Employee Retirement Income Security Act (ERISA) was passed in 1974, companies refusing to hire benefits were commonplace. It was possible, for example, for an employee to be dismissed a week before retirement and be left with no pension benefits. ERISA requirements were tightened drastically to protect employees. These requirements

GRAPHIC 17-3

Alternative Measures
of the Pension
Obligation



The accumulated benefit obligation (ABO) is the present value of the benefits earned to date by employees, applying the plan's pension formula using existing compensation levels.

The projected benefit obligation (PBO) is the present value of the benefits earned to date by employees, applying the plan's pension formula using projected compensation levels.

have been changed periodically since then. Beginning in 1981, benefits must vest (a) either within five years or (b) 20% within three years with another 20% vesting each subsequent year until fully vested after seven years. Five-year vesting is most common. ERISA also established the Pension Benefit Guaranty Corporation (PBGC), to impose liens on corporations' assets for unfunded pension liabilities in certain instances and to administer terminated pension plans. The PBGC is financed by premiums from employers equal to specified amounts for each covered employee. It makes retirement payments for terminated plans and guarantees basic vested benefits when pension liabilities exceed assets.

ACCUMULATED BENEFIT OBLIGATION

The accumulated benefit obligation (ABO) is an estimate of the discounted present value of the retirement benefits earned so far by employees, applying the plan's pension formula using existing compensation levels. When we look at a detailed calculation of the projected benefit obligation below, keep in mind that simply substituting the employee's current compensation in the pension formula for her projected salary at retirement would give us the accumulated benefit obligation.

PROJECTED BENEFIT OBLIGATION

As described earlier, when the ABO is estimated, the most recent salary is included in the pension formula to estimate future benefits, even if the pension formula specifies the "next year's salary." No attempt is made to forecast what that salary would be the year before retirement. Of course, the most recent salary certainly offers an objective number to measure the obligation, but is it realistic? Since it's unlikely that there will be no salary increases between now and retirement, a more meaningful measurement should include a projection of what the salary might be at retirement.⁵ Measured this way, the liability is referred to as the projected benefit obligation (PBO). The PBO measurement may be less reliable than the ABO, but more relevant and representationally faithful.

To understand the concepts involved, it is helpful to look at a numerical example. We'll simplify the example, Illustration 17-3, by looking at how pension amounts would be determined for a single employee. Keep in mind though, that in actuality, calculations would be made (by the actuary) for the entire employee pool rather than on an individual-by-individual basis.

The projected benefit obligation (PBO) is the present value of the benefits earned to date by employees, applying the plan's pension formula using projected compensation levels.

⁵ In fact, the most common approach is to assume a constant salary increase rate. For example, if the employee's current salary is \$50,000 and the assumed salary increase rate is 5%, the projected salary at retirement would be \$50,000 × (1.05)ⁿ, where *n* is the number of years until retirement. This approach is used in the example above.

est, a Farrow was hired by Global Communications in 1996. The company has a defined pension plan that specifies annual retirement benefits equal to:

$$1.5\% \times \text{Service years} \times \text{Final year's salary}$$

Mr. Farrow elected to retire in 2005 after 10 years service. His retirement benefits began in 2006. He worked for 20 years at company hired his salary is \$500,000. The interest rate is 6%. The company's actuary projects Mr. Farrow's salary in 2005 is \$400,000. The amount of it is the company's projected benefit obligation with respect to service rendered.

Steps to calculate the projected benefit obligation:

1. Find the present value of the retirement benefits as of the retirement date.
The pension plan's annual benefit is equal to 1.5% of Mr. Farrow's salary to determine the retirement annuity at the retirement date.

2. Find the present value of the retirement benefits as of the retirement date.

Find the present value of retirement benefits as of the retirement date.

| | | | |
|---|--|------|------|
| 3. Present value (n = 10, i = 6%) of retirement benefits at 2005 is | 1. Actuary estimates employee has earned (as of 2005) retirement benefits of 1.5% x 10 years x \$400,000 = | | |
| $\$658,195 \times 17.411 =$ | $\$60,000$ per year | | |
| \$114,822 (PBO) | | | |
| 1996 | 2005 | 2005 | 2055 |

0 years 30 years 20 years
Service period Retirement

2. Present value (n = 20, i = 6%) of the retirement annuity at the retirement date is
 $\$60,000 \times 11.4592 =$
\$687,552

At the end of the year 2005, the company's projected benefit obligation is \$114,822. The company's projected benefit obligation is \$687,552.

If the actuary's estimate of the final salary hasn't changed, the PBO a year later at the end of 2006 would be \$139,715 as demonstrated in Illustration 17-1A.

| | |
|---|---|
| <p>3. Present value ($n = 29, i = 6\%$) of retirement benefits at 2006 is</p> <p>$\\$757,015 \times 18.456 =$</p> <p>\$139,715 (PBO)</p> | <p>1. Actuary estimates employee has earned (as of 2006) retirement benefits of</p> <p>$1.5\% \times 11 \text{ years} \times \\$400,000$</p> <p>\$66,000 per year</p> |
| <p>1996</p> <p>2006</p> <p>11 years</p> <p>Service period</p> | <p>2006</p> <p>2055</p> <p>29 years</p> <p>Retirement</p> |
| <p>2. Present value in 2006 of the retirement annuity at the retirement date is</p> <p>$\\$66,000 \times 16.629 =$</p> <p>\$1,096,134</p> | <p>3. Present value ($n = 20, i = 6\%$) of the retirement annuity at the retirement date is</p> <p>$\\$66,000 \times 11.469 =$</p> <p>\$757,015</p> |

11 years 29 years 20 years
Service period Retirement

2. Present value (n = 20, i = 6%) of the retirement annuity at the retirement date is
 $\$66,000 \times 11.4592 =$
\$757,015

ILLUSTRATION 17-1 Projected Benefit Obligation

The company's projected benefit obligation is the present value of the retirement benefits. The projected benefit obligation is the present value of the retirement benefits.

The company's projected benefit obligation is the present value of the retirement benefits. The projected benefit obligation is the present value of the retirement benefits.

ILLUSTRATION 17-1A PBO in 2006

In 2006 the pension formula includes one more service year.

Also, 2006 is one year closer to retirement, making the present value of benefits to increase due to the time value of future benefits (interest cost).

Changes in the PBO. Notice that the PBO increased during 2006 (Illustration 17-1A), from \$114,822 to \$139,715 for two reasons:

1. One more service year is included in the pension formula calculation (service cost).
2. The employee is one year closer to retirement, making the present value of benefits to increase due to the time value of future benefits (interest cost).

These represent two of the events that might possibly cause the balance of the PBO to change. Let's elaborate on these with the three other events that might change the balance of the PBO. The five events are: (1) service cost, (2) interest cost, (3) prior service cost, (4) gains or losses, and (5) payments to retired employees.

Each year's
adds to the obligation
by the employer

2006 = 46,400
2007 = 46,400

1 Service cost. As we just witnessed in the illustration, the PBO increases each year by the amount of that year's service cost. This represents the increase in the projected benefit obligation attributable to employee service performed during the period. As we explain later, it also is the primary component of the annual pension expense.

2 Interest cost. The second reason the PBO increases is called the interest cost. Even though the projected benefit obligation is not formally recognized as a liability in the company's balance sheet, it is a liability nevertheless. And, as with other liabilities, interest accrues on its balance as time passes. The amount can be calculated directly as the assumed discount rate multiplied by the projected benefit obligation at the beginning of the year.⁶

ADDITIONAL CONSIDERATION

We can verify the increase in the PBO as being caused by the service cost and interest cost as follows:

| | |
|--|-----------|
| PBO at the beginning of 2006 (end of 2005) | \$ 9,822 |
| Service cost ($1.5\% \times 1 \text{ yr.} \times \$400,000$) | 11,469.92 |
| Annual retirement benefits from 2006 service | 18,456 |
| To discount to 2035* | |
| To discount to 2006† | |
| Interest cost: $\$119,822 \times 6\%$ | 7,189 |
| PBO at the end of 2006 | \$ 39,772 |

*Present value of an ordinary annuity of \$1; $n = 30$; $i = 6\%$

†Interest factor: $i = 6\%$; $n = 30$

†Interest on \$119,822 is also rounded

3 Prior service cost. Another reason the PBO might change is when the pension plan itself is amended to revise the way benefits are determined. For example, Global Company in our illustration might choose to revise the pension formula by which benefits are calculated. Let's look up and assume that Global's salary percentage is increased to 1.7% from 1.5% to 1.7%.

$$1.7\% \times \text{Service years} \times \text{Final year's salary} \\ \text{revised pension formula}$$

Obviously, the annual service cost from this date forward will be higher than it would have been without the amendment. This will cause a more rapid future expansion of the PBO. But it also might cause an immediate increase in the PBO as well. Here's why.

Suppose the amendment becomes effective for future years' service only, without consideration of employee service to date. As you might imagine, the morale and dedication of long-time employees of the company could be expected to suffer. So, for economic as well as ethical reasons, most companies choose to make amendments retroactive to prior years. In other words, the more beneficial terms of the revised pension formula are not applied to future service years, but benefits attributable to all prior service years also are re-evaluated under the more favorable terms. Obviously, this decision is not without cost to the company. Making the amendment retroactive to prior years adds an extra layer of retirement benefit, increasing the company's benefit obligation. The increase in the PBO attributable to making a plan amendment retroactive is referred to as prior service cost.⁷ For instance, in pp. 17-6 presents an excerpt from an annual report of Geniab, Inc., describing the increase in PBO as a result of making an amendment retroactive.

When a pension plan is amended, the company must recognize the effect of the amendment on the PBO. The effect is calculated as follows:

4. When the company's pension plan is amended, the company must recognize the effect of the amendment on the PBO. The effect is calculated as follows:

Note 1 Retirement Plan (in part)

The Company amended its defined pension plan to change the formula for pension benefits and to provide a more rapid vesting schedule. The plan amendment resulted in a \$6 million increase in the projected benefits obligation.

GRAPHIC 17-6

Prior Service Cost—
Estimated

Let's put prior service cost in the context of our illustration.

At the end of 2005, and therefore the beginning of 2006, the PBO is \$119,822. If the plan is amended on January 3, 2006, the PBO could be recomputed as:

| PBO without Amendment | | PBO with Amendment | |
|-----------------------|--|---------------------------|--|
| 1. | $1.5\% \times 10 \text{ yrs.} \times \$400,000 = \$60,000$ | 1. | $1.7\% \times 10 \text{ yrs.} \times \$400,000 = \$68,000$ |
| 2. | $\$60,000 \times 11.46992 = 688,195$ | 2. | $\$68,000 \times 11.46992 = 779,955$ |
| 3. | $\$688,195 \times 17d11 = 119,822$ | 3. | $\$779,955 \times 17d11 = 135,798$ |
| | | \$14,976 | |
| | | Prior service cost | |

As the table demonstrates, the new formula would increase the PBO by \$14,976, the difference between the two PBOs.

The \$14,976 increase in the PBO attributable to applying the more generous terms of the amendment to prior service years is the prior service cost. And, because we assumed the amendment occurred at the beginning of 2006, both the 2006 service cost and the 2006 interest cost would change as a result of the prior service cost. This is how:

| | |
|---|-----------|
| PBO at the beginning of 2006 (end of 2005) | \$119,822 |
| Prior service cost (determined above) | 14,976 |
| PB, including prior service cost at the beginning of 2006 | \$134,798 |
| Service cost ($1.7\% \times 1 \text{ yr} \times \$400,000$) | 6,800 |
| Interest cost ($5\% \times \$134,798$) | 6,739 |
| PB at the end of 2006 | \$148,337 |

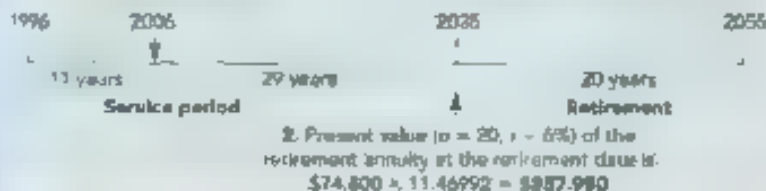
The prior service cost increased the PBO at the beginning of 2006.

ADDITIONAL CONSIDERATION

We can verify the PBO balance by calculating it directly.

3. Present value (at 20% discount rate) of retirement benefits at 2006 is \$134,798. (PBO)
1. Actuarially, states employee has earned (as of 2006) 1.7% of \$400,000 per year.

The prior service cost is the value of the amendment.



Adjusted by \$2 to approximate the rounding of present value factors.

The plan amendment would affect not only the year in which it occurs, but also each subsequent year because the revised pension formula determines each year's service cost. Continuing our illustration to 2007 demonstrates this.

plan amendments retroactive to prior years, and periodic adjustments when estimates change. Another change in the PBO occurs when the obligation is reduced as benefits are paid to retired employees.

The payment of such benefits is not applicable in our present illustration because we've limited the calculation to determining an individual employee who is several years from retirement. Remember, though, in reality the actuary would make these calculations for the entire pool of employees covered by the pension plan. But the concepts involved would be the same. Graphic 17-7 summarizes the five ways the PBO can change.

Graphic 17-7 summarizes the five ways the PBO can change.

The Projected Benefits Obligation Changes as a Result of:

| Cause | Effect | Frequency |
|--------------------------------|------------------------|-----------------------|
| Service cost | Increased | Annual |
| Interest cost | Increased | Annual |
| Expected return on plan assets | Decreased | Annual |
| Actuarial gains and losses | Increased or decreased | Annual |
| Benefits paid | Decreased | When employees retire |

GRAPHIC 17-7
Components of Change in the PBO

ILLUSTRATION EXPANDED TO CONSIDER THE ENTIRE EMPLOYEE POOL

For the single employee, the PBO at the end of 2007 is \$192,944. Let's say now that Global Communications has 2,000 active employees covered by the pension plan and 100 retired employees receiving retirement benefits. Illustration 17-2 expands the numbers to represent all covered employees.

The PBO is not formally recognized on the balance sheet.

The company's ending PBO for Global Communications during 2007 would be as follows:

| | (\$ in millions) |
|---|------------------|
| PBO at the beginning of 2007 (amount assumed) | \$400 |
| Service cost, 2007 (amount assumed) | 41 |
| Interest cost, \$400 @ 6% | 24 |
| Loss (gain) on PBO (amount assumed) | 23 |
| Less: Retiree benefits paid (amount assumed) | (38) |
| PBO at the end of 2007 | <u>\$450</u> |

ILLUSTRATION 17-2
The PBO Expanded to Include All Employees

The company's ending PBO for Global Communications during 2007 would be as follows:

Pension Plan Assets

So far our focus has been on the employer's obligation to provide retirement benefits in the future. We turn our attention now to the resources with which the company will satisfy that obligation—the pension plan assets. Like the PBO, the pension plan assets are not formally recognized on the balance sheet but are actively monitored in the employer's financial records. Its balance, too, must be reported in disclosure notes to the financial statements, and as explained below, it is used in these assets as measured in the calculation of the periodic pension expense.

We assumed in the previous section that Global Communications' obligation is \$450 million for service performed to date. When employees retire, will there be sufficient funds to

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Global Pension Plan Assets

provide the anticipated benefits? To ensure sufficient funding, Global will contribute cash each year to a pension fund.

The assets of a pension fund must be held by a trustee. A trustee accepts employer contributions, invests the contributions, accumulates the earnings on the investments, and pays benefits from the plan assets to employees as they become due. The trustee acts as an institutional investor, investing the company's plan assets in a variety of stocks, bonds, and other income-producing assets. The accumulated balance of the annual employer contributions plus the return on the investments (dividends, interest, market price appreciation) must be sufficient to pay for the benefits expected.

When an employer accumulates how much it must set aside each year, it accumulates until contributions to the pension fund are sufficient to pay the benefits due. It is necessary to estimate how much these contributions will produce. This is done by estimating the return on the investments. If the return is higher than expected, the employer must actually contribute less. On the other hand, a relatively low return means the difference must be made up by higher contributions. In practice, recent estimates of the rate of return have ranged from 4.5% to 11%, with 8.5% being the most commonly reported expectation.¹ In Illustration 17-3, we shift the focus of our numerical illustration to emphasize Global's pension plan assets.

Illustration 17-3 How Plan Assets Change

At the beginning of 2007, Global's pension plan assets were \$300 million. During the year, the plan assets changed as follows:

Global Company funds its defined benefit pension plan by contributing each year the year's service cost plus a portion of the prior service cost. Cash of \$48 million was contributed to the pension fund at the end of 2007.

At the beginning of 2007, the plan assets were valued at \$300 million. The expected rate of return on the investments of those assets was 10%. But the actual return in 2007 was 12%, so the end of 2007 value of the plan assets at the end of 2007?

| | | (\$ in millions) |
|--------------------------------------|--|------------------|
| Plan assets at the beginning of 2007 | | \$300 |
| Return on plan assets (12% of \$300) | | 36 |
| Cash contributions | | 48 |
| Less: Retiree benefits paid | | (38) |
| Plan assets at the end of 2007 | | <u>\$346</u> |

Global's pension plan assets at the end of 2007 were \$346 million. The plan assets at the end of 2007 were \$346 million.

Global's pension plan assets at the end of 2007 were \$346 million. The plan assets at the end of 2007 were \$346 million.

Recall that Global's PBO at the end of 2007 is \$450 million. Because the plan assets are only \$346 million, the pension plan is said to be *underfunded*. One reason is that the pension plan incurred a \$60 million prior service cost from amending the pension plan at the beginning of 2006, and that cost is being funded over several years. Another factor is the difference between the PBO due to the pension plan and the actual pension plan assets. In previous estimates, later, we'll assume earlier revisions also have increased the PBO. Of course, actual performance of the investments also impacts a plan's funded status.

It is not unusual for pension plans today to be underfunded. Historically the funded status of pension plans has varied considerably. Prior to the Employee Retirement Income Security Act (ERISA) of 1974, many plans were severely underfunded. The new law established minimum funding standards among other matters designed to protect plan participants. The standards brought most plans closer to full funding. Then the stock market boom of the 1980s caused the value of plan assets for many pension funds to swell, so well over their projected benefit obligations. More than 80% of pension plans were overfunded. As a result, managers explored ways to divert funds to other areas of operations. Today a majority of plans again are underfunded. Many of the underfunded plans are with troubled companies putting employees at risk. The PBGC guarantees are limited to about \$3,400 per month, or ten times less than promised pension benefits.

¹ADP's *Acting Trends and Forecasts, 2008*.

REPORTING THE FUNDED STATUS OF THE PENSION PLAN

A company's PBO is not reported among liabilities in the balance sheet. Similarly, the plan assets a company has aside to pay those benefits are not reported among assets in the balance sheet. The net difference between the two amounts is the "funded status" of the plan.¹⁰ From our previous discussion, we see the funded status for Global to be the following at Dec. 31, 2007, and Dec. 31, 2006:

| | | |
|------------------------------------|-------|-------|
| (\$ in millions) | 2007 | 2006 |
| Projected benefit obligation (PBO) | \$450 | \$400 |
| Fair value of plan assets | 340 | 300 |
| Underfunded status | \$110 | \$100 |

Because the plan is underfunded, Global reports a pension liability of \$110 million on its 2007 balance sheet and \$100 million on 2006. If the plan becomes overfunded in the future, Global will report a pension asset instead.

Now, let's look at all the ways that changes in the pension liability and the pension plan assets affect pension expense.

DETERMINING PENSION EXPENSE

The Relationship between Pension Expense and Changes in the PBO and Plan Assets

Wages, salaries, commissions, and other forms of pay, pension expense is part of a company's compensation for employee services each year. Accordingly, the accounting objective is to achieve a matching of the costs of providing this form of compensation with the benefits of the services performed. However, the fact that this form of compensation actually is paid to employees many years after the service is performed means that other elements in addition to the annual service cost will affect the ultimate pension cost. These other elements are related to changes that occur over time in both the pension liability and the pension plan assets. Graphic 17-4 provides a summary of how some of these changes influence pension expense.

We examined each of the components of pension expense from the viewpoint of its effect on the PBO or on plan assets, using the Global Corporation's Illustration 10 to demonstrate that effect. Now, let's expand the same illustration to see how these changes affect pension expense. Illustration 17-4 provides this expanded example.

COMPONENTS OF PENSION EXPENSE

Illustration 17-4 demonstrates the relationship between some of the changes in the PBO and in plan assets and the components of pension expense: service cost, interest cost, the return on plan assets, prior service cost amortization, and net gain or loss amortization. Let's look at these five components of pension expense one at a time.

1. Service Cost. The \$41 million service cost represents the increase in the projected benefit obligation attributable to employee service performed during 2007 (benefits earned by employees during the year). Each year this is the first component of the pension expense.

2. Interest Cost. The interest cost is calculated as the interest rate (company's discount rate) multiplied by the projected benefit obligation at the beginning of the year. In 2007, this amounts to \$400 million, or \$24 million.

The PBO is not formally recognized as a liability in the company's balance sheet, but it is a liability nevertheless. The interest expense that accrues on its balance is not separately reported on the income statement but is instead combined with the service cost (and other amounts) as the second component of the annual pension expense.

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| | | | | |
|----|----|----|----|-----|
| A | B | C | D | E |
| 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 |
| 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 |
| 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 |
| 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 |
| 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 |
| 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 |
| 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 |
| 96 | 97 | 98 | 99 | 100 |

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| | | | | |
|----|----|----|----|-----|
| A | B | C | D | E |
| 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 |
| 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 |
| 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 |
| 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 |
| 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 |
| 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 |
| 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 |
| 96 | 97 | 98 | 99 | 100 |

¹⁰Complete Accounting for Defined Benefit Pensions and Other Postretirement Plans is an acronym of FASB Standards Nos. 87, 88, 106, and 120.

Graphic 17-8
Components of the
Periodic Pension
Expense

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1. The pension expense is calculated as follows:
2. The pension expense is calculated as follows:
3. The pension expense is calculated as follows:
4. The pension expense is calculated as follows:
5. The pension expense is calculated as follows:
6. The pension expense is calculated as follows:

Changes in the PBO

Service cost: increase in the employer's obligation attributable to employee service during the reporting period.

Interest cost: interest accrued on the obligation during the reporting period, calculated as the beginning PBO multiplied by the discount rate.

Prior service cost: increase in the employer's obligation attributable to a grant of additional benefits for years of service credited before the pension plan is amended (or initiated).

Losses or gains on the PBO: net change in decreases in interest rate or in the PBO assumptions or in underlying assumptions.

Less: Payments to retirees

to the current year
→ Service cost
→ Interest cost
→ Expected return on the plan assets.
Deduct from the sum of the first three items of
→ Prior service cost
→ Net loss or gain

Expected return on the plan assets: estimated long-term return on the plan assets, based on the expected return on the assets. The expected return is a weighted average of the expected returns on the assets.

Gain or (loss) on the plan assets: net change in the plan assets less the expected return on the assets.

Cash contributions: payments made by the employer.

Less: Payments to retirees

Illustration 17-4
Pension Expense

The pension expense is calculated as follows:
1. The pension expense is calculated as follows:
2. The pension expense is calculated as follows:
3. The pension expense is calculated as follows:
4. The pension expense is calculated as follows:
5. The pension expense is calculated as follows:

Reports from the actuary and the trustee of plan assets indicate the following changes in 2007 in the PBO and plan assets of Global Communications.

| (\$ in millions) | PBO | Plan Assets |
|------------------------|-------|-------------------------------------|
| Beginning of 2007 | \$400 | \$500 |
| Service cost | 4 | |
| Interest cost (6%) | 24 | |
| Loss (year-end PBO) | 2 | |
| Less: Retiree benefits | (34) | |
| End of 2007 | \$450 | \$530 |
| | | Return on plan assets, ^a |
| | | 10% (9% expected) ^b |
| | | Cash contributions |
| | | Less: Retiree benefits |
| | | End of 2007 |

A prior service cost of \$60 million was recognized at the beginning of the previous year (2006) due to a plan amendment increasing the PBO. At the beginning of 2007, Global had a net loss-pensions of \$55 million (previous losses exceeded previous gains). The average remaining service life of employees is estimated at 5 years.

| Global's 2007 Pension Expense Is Determined as Follows: | \$ in millions |
|---|----------------|
| Service cost | 4 |
| Interest cost | 24 |
| Expected return on the plan assets (\$30 actual, less \$3 gain) | (27) |
| Amortization of prior service cost (calculated later) | 4 |
| Amortization of net loss-pensions (calculated later) | 7 |
| Pension expense | \$12 |

^a Expected return on plan assets is calculated as follows: \$450 million PBO × 10% = \$45 million. Actual return on plan assets is \$45 million minus \$3 million gain = \$42 million. ^b Expected return on plan assets is calculated as follows: \$450 million PBO × 9% = \$40.5 million. Actual return on plan assets is \$42 million minus \$3 million gain = \$39 million.

3. Return on Plan Assets. Remember, plan assets comprise funds invested in stocks, bonds, and other securities that presumptively will generate dividends, interest, and capital gains. Each year those earnings represent the return on plan assets during that year. When accounting for the return, we need to differentiate between its two modes: the *expected* return and the *actual* return.

Actual versus expected return. We've assumed Global's expected rate of return is 9%, and expected return on plan assets in 2007 was 9% times \$300 million, or \$27 million. But as previously indicated, the actual rate of return in 2007 was 10%, producing an actual return on plan assets of 10% times \$300 million, or \$30 million.

Obviously, investing plan assets in income-producing assets lessens the amounts employers must contribute to the fund. So, the return on plan assets reduces the net cost of having a pension plan. Accordingly, the return on plan assets each year *reduces* the amount recorded as pension expense. Just as the interest expense that accrues on the PBO is included as a component of periodic expense rather than being separately reported, the investment revenue on plan assets is not separately reported either. So, the net pension expense is reduced by the actual return on plan assets. And only because the pension payment is made as a whole the situation is higher than it is.

Adjustment for loss or gain. A controversial question is where differences between the actual and expected return should be recognized in pension expense. It seems logical that since the net cost of having a pension plan is reduced by the actual return on plan assets, the change in pension expense should be the actual return on plan assets. However, the FASB ruled that the actual return should first be adjusted by any difference between that return and what the return has been expected to be. So, it's actually the *expected* return that is included in the calculation of pension expense. In our illustration, Global's pension expense is reduced by the expected return of \$27 million.

The difference between the actual and expected return is considered a loss or gain on plan assets. Although we don't include these losses and gains as part of pension expense when they occur if a possible they will affect pension expense at a later time. On the next page we will discuss how that might happen.

4. Amortization of Prior Service Cost. Recall that the \$60 million increase in Global's PBO due to recalculating benefits employees earned in prior years as a result of a amendment is referred to as the prior service cost. Obviously, prior service cost adds to the cost of having a pension plan. But when should this cost be recognized as pension expense? An argument can be made that the cost should be recognized as expense in the year the amendment when the cost increases the company's pension obligation. In fact, some companies do this. But the FASB ruled that the cost should be recognized as expense over the time that the employees who benefited from the retrospective amendment will work for the company in the future. Presumably, this future service period is when the company will receive the benefits of its actions.

In our illustration, the amendment occurred in 2006, decreasing the PBO at that time. For individual employee, Jessica Parrow, the prior service cost was calculated to be \$14,976. Our illustration assumes that, for all plan participants, the prior service cost was \$60 million at the beginning of 2006. The prior service cost at the beginning of 2007 is \$56 million. The following section explains how this amount was computed.

One assumption in our illustration is that the average remaining service life of the active employee group is 5 years. To recognize the \$60 million prior service cost in equal annual amounts over the period, the amount amortized as an increase in pension expense each year

The return earned on increases the plan

10.00%

10.00%

10.00%

10.00%

By _____

revised _____

to _____

at _____

for _____

Assets _____

Liabilities _____

Equity _____

Income _____

Expenses _____

Net Income _____

| Amortization of Prior Service Cost | (\$ in millions) |
|------------------------------------|------------------|
| Service cost | \$41 |
| Interest cost | 24 |
| Expected return on the plan assets | (27) |
| Amortization of prior service cost | 4 |
| Amortization of net loss—pensions | 1 |
| Pension expense | \$43 |

Be sure to note that even though we're amortizing all the prior service cost at once, it's not an asset, but instead a part of *accumulated other comprehensive income*, a shareholders' equity account. This is a result of the FASB's current disinclination to treat the cost as an expense as is incurred. The reason, instead, prefers to ascribe it the off-the-income-statement designation as a *net loss—pensions* in the same manner as the handful of losses it guides also categorized the same way upon reported issuing the gains and losses at the additional income statement. You first learned about comprehensive income in Chapter 4 and again in Chapter 12. We'll revisit it again later in this chapter.

The prior service cost declines by \$4 million each year.

| Prior Service Cost | (\$ in millions) |
|--|------------------|
| Prior service cost at the beginning of 2007 | \$56 |
| Less: 2007 amortization | (4) |
| Prior service cost at the end of 2007 | \$52 |

3. Amortization of a Net Loss or Net Gain. You learned previously that gains and losses can occur when expectations are revised concerning either the FBO or the return on plan assets. Graphic 17-9 summarizes the possibilities.

Graphic 17-9
Gains and Losses

Assets _____

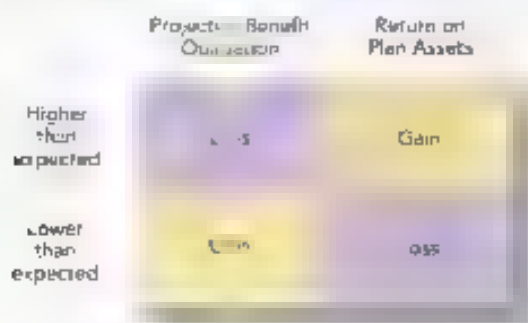
Liabilities _____

Equity _____

Income _____

Expenses _____

Net Income _____



Like the prior service cost we just discussed, we don't include these gains and losses as part of pension expense in the income statement, but instead report them as *other comprehensive income* in the statement of comprehensive income as they occur. We then report the gains and losses on a cumulative basis as a *net loss—pensions* or a *net gain—pensions*, depending on whether we have greater losses or gains over time. We report this amount in the balance sheet as a part of *accumulated other comprehensive income*, a shareholders' equity account.

There is no conceptual justification for not including losses and gains on earnings. After all, these increases and decreases in either the PBO or plan assets immediately impact the net income, providing a pension plan and, conceptually, should be included in pension expense as the *net loss*.

Nevertheless, The FASB requires that income statement recognition of gains and losses from either source be delayed. Why?—for practical reasons.

INCOME SMOOTHING

The FASB acknowledged the conceptual shortcoming of delaying the recognition of a gain or a loss while opting for this more politically acceptable approach. Delayed recognition for

avored by a dominant segment of corporate America that was concerned with the effect of allowing gains and losses to immediately impact reported earnings. In 2006, the FASB de-

cided to formally reconsider all aspects of accounting for postretirement benefit plans, including the treatment of gains and losses.¹⁴ The project will consider overhauling the entire system for accounting for and reporting on postretirement benefits. This result ought include immediately including gains and losses in pension expense, thereby eliminating income smoothing.

The practical justification for delayed recognition is that, over time, gains and losses ought "cancel" one another out. Given this possibility, why create unnecessary fluctuations in reported income by letting temporary gains and losses decrease and increase (respectively) pension expense? Of course, as years pass there may be more gains than losses, or vice versa, preventing their offsetting one another completely. So, if a net gain or a net loss gets "too large," pension expense must be adjusted.

SFAS 87 defines too large rather arbitrarily as being when a net gain or a net loss at the beginning of a year exceeds an amount equal to 10% of the PBO or 10% of plan assets, whichever is higher.¹⁵ SFAS 87 refers to this threshold amount as the "corridor." When the corridor is exceeded, the excess is not charged to pension expense all at once. Instead, as a further concession to income smoothing, only a portion of the excess is included in pension expense. The minimum amount that should be included is the excess divided by the average remaining service period of active employees expected to receive benefits under the plan.¹⁶

In our illustration, we're assuming a net loss—pensions of \$45 million at the beginning of 2007. Also recall that the PBO and plan assets are \$400 million and \$300 million, respectively, at that time. The amount amortized to 2007 pension expense is \$1 million, calculated as follows:

| Determining Net Loss Amortization—2007 | (\$ in millions) |
|--|------------------|
| Net loss (previous losses exceeded previous gains) | \$45 |
| 10% of \$400 (\$400 is greater than \$300): the "corridor" | (40) |
| Excess at the beginning of the year | \$5 |
| Average remaining service period | ≈ 15 years |
| Amount amortized to 2007 pension expense | \$1 |

The pension expense is increased because a net loss is being amortized. If a net gain were amortized, the amount would be deducted from pension expense because a gain would indicate that the net cost of providing the pension plan had decreased.

14. Brogdon, "Measuring Corporate Pension Postretirement Benefits," p. 64; November 2006, pp. 30–31.

15. For Accounting On Defined Benefit Pensions and Other Postretirement Plans, see the Statement of Financial Accounting Standards No. 87, issued by the FASB in 1980. The FASB also issued Statement of Financial Accounting Standards No. 88, issued in 1980, which amended SFAS 87. The FASB also issued Statement of Financial Accounting Standards No. 89, issued in 1980, which amended SFAS 87 and SFAS 88.

Amortization expense
is calculated as follows:
Amortization expense
= (PBO - Plan assets) / 15 years

| Amortization of the Net Loss-Pensions | (\$ in millions) |
|---------------------------------------|------------------|
| Service cost | \$41 |
| Interest cost | 24 |
| Expected return on the plan assets | (27) |
| Amortization of prior service cost | 4 |
| Amortization of net loss-pensions | 1 |
| Pension expense | \$43 |

This amortization reduces the net loss in 2007 by \$1 million. Also recall that Global incurred (a) a \$23 million loss in 2007 in its revaluing estimates relating to the PBO and (b) a \$3 million gain when the 2007 return on plan assets was higher than expected. These three changes affected the net loss-pensions in 2007 as follows:

New losses add to a net loss; new gains reduce a net loss.

| Net Loss-Pensions | (\$ in millions) |
|--|------------------|
| Net loss-pensions at the beginning of 2007 | \$55 |
| Less: 2007 amortization | (1) |
| Plus: 2007 loss on PBO | 23 |
| Less: 2007 gain on plan assets | (3) |
| Net loss-pensions at the end of 2007 | \$74 |

ADDITIONAL CONSIDERATION

The \$74 million balance at the end of 2007 would be the beginning balance in 2008. It would be compared with the 2008 beginning balances in the PBO and plan assets to determine whether amortization would be necessary in 2008. If you were to look back to our analyses of the changes in pension balances, you would see the 2008 beginning balances in the PBO and plan assets to be \$450 million and \$340 million, respectively. The amount amortized to 2008 pension expense will be \$1.93 million, calculated as follows:

| | \$ in millions |
|--|----------------|
| Net loss (previous losses exceeded previous gains) | \$74 |
| 6% of \$450 - \$340 is greater than \$3 | (45) |
| Excess at the beginning of the year | \$29 |
| Average remaining service period | 15 years |
| Amount amortized to 2008 pension expense | \$1.93 |

Amount of the 2008 pension expense that will be added to 2008 operating income is \$1.93 million.

PERSPECTIVE

Most large companies in Japan sponsor pension plans that are funded through mutual institutions. Contributions to pension funds are tax deductible. Because the taxes levied by the government are reported as income tax expense on the income statement, many Japanese companies report annual pension expense equal to cash contributions to the pension fund.

In other countries, such as France, Belgium, Finland, India, and New Zealand, pension costs are not covered by accounting standards. In still other countries pension accounting is irrelevant because the occurrence of pension plans is rare (Korea, Argentina, and Russia, for example).

GRAPHIC 17-10
Disclosure of Pension Expense—Northwest Airlines

The components of pension expense are:

1. Service cost

2. Interest cost

3. Expected return on plan assets

4. Remeasurement net actuarial loss

5. Net periodic benefit cost

6. Net periodic benefit cost

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Note 12: Pension and Other Postretirement Health Care Benefits

The components of net periodic cost of defined benefit plans include the following (in millions):

| | 2004 | 2003 | 2002 |
|------------------------------------|--------|--------|--------|
| Service costs | \$ 40 | \$ 208 | \$ 215 |
| Interest cost | 534 | 52 | 503 |
| Expected return on plan assets | 5 | 466 | 538 |
| Amortization of prior service cost | 75 | 77 | 93 |
| Recognized net actuarial loss | 99 | 11 | 35 |
| Net periodic benefit cost | \$ 144 | \$ 47 | \$ 399 |

immediately included in pension expense and net income. Instead, we report them as *other comprehensive income* in the statement of comprehensive income. For example, in the *other comprehensive income* section for the year ended December 31, 2003, when there was a net gain of \$1.5 million, we report the PBO estimate to increase as well as a \$1.5 million gain *other comprehensive income* that occurred when the \$1.5 million actual return on plan assets exceeded the \$3.2 million expected return. Here is the entry:

| | | |
|--------|----------------------------------|-----|
| Debit | Other Comprehensive Income (OCI) | 1.5 |
| Credit | Pension Liability | 1.5 |

The loss increases the PBO, and the gain increases plan assets. Since the pension liability is the excess of the PBO over the plan assets, when the PBO goes up by \$1.5 million, the pension liability goes up. But when the plan assets go up by \$1.5 million, the pension liability goes down. As a result, the pension liability increases by \$20 million.

Remember, gains and losses become part of either a net loss—periodic or a net gain—periodic. In this case, the net loss—periodic is Global's net loss, which is a component of *comprehensive income* and is reported in the shareholders' equity account.

ADDITIONAL CONSIDERATION

Just as we record new losses and gains when they occur, we also will record a change in the prior service cost account for any new prior service cost should it occur. For instance, if Global revised its pension formula again and recalculated its PBO using the more generous formula, causing a \$40 million increase in the PBO, the company would record the new prior service cost this way:

| | | |
|--|----|---------|
| To Record New Prior Service Cost as Other Comprehensive Income (OCI) | 15 | million |
| Prior service cost—OCI (increase in PBO due to plan amendment) | 40 | |
| Pension liability | 40 | |

If an amendment reduces rather than increases the PBO, the *negative* prior service cost would reduce both the prior service cost and pension liability.

Comprehensive Income

Comprehensive income, as you may recall from Chapter 4, is a more expansive view of income than traditional net income. In fact, it encompasses all changes in equity other than

from transactions with owners.² So, in addition to net income, comprehensive income adds up four line changes to equity. A statement of comprehensive income is presented later in Illustration 17-5, highlighting the presentation of the components of other comprehensive income pertaining to a total shareholder return.

| | \$ in millions | |
|--|----------------|--|
| Net income | 5,000 | |
| Other comprehensive income | | |
| Net unrealized holding gains (losses) on investments | \$ 4 | |
| Cash flow hedges | 2.5 | |
| Foreign currency translation | 1 | |
| Deferred gains (losses) from derivatives | 0 | |
| Gains (losses) from foreign currency translation | 0 | |
| Comprehensive income | 5,007 | |

ILLUSTRATION 17-5
Statement of Comprehensive Income

Gains and losses, as well as any new prior service cost should it arise, are shown the other comprehensive income items and the period they occur.

Other comprehensive income (OCI) items are reported both (a) as they occur and (b) as an accumulated balance as shown in Illustrations 17-5 and 17-6.

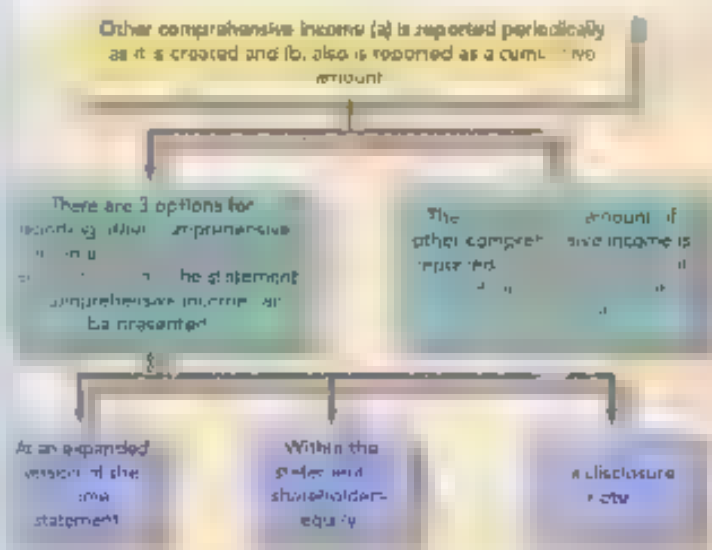


ILLUSTRATION 17-6
Reporting Comprehensive Income

In addition to reporting the gains or losses (and other elements of comprehensive income) that occur in the current reporting period, we also report these amounts on a cumulative basis.

²Transactions with owners primarily include dividends and the sale or purchase of shares by the company's stockholders. For example, if a company reports net income of \$100 million and has a dividend of \$20 million, the total shareholder return is \$80 million (\$100 million - \$20 million).

ILLUSTRATION 17-7

Balance Sheet
Presentation of
Pension Amounts

Global Communication
Balance Sheet
Presentation of
Pension Amounts

Global Communication
Balance Sheet
Presentation of
Pension Amounts

Reporting of
Global Communication
Balance Sheet
Presentation of
Pension Amounts

Other Comprehensive
Income
Global Communication
Balance Sheet
Presentation of
Pension Amounts

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**Global Communication
Balance Sheet
For Years Ended December 31**

| | 2007 | 2006 |
|---|-------|-------|
| Assets | | |
| Current assets | \$600 | \$600 |
| Property, plant, and equipment | 800 | 800 |
| Liabilities | | |
| Current liabilities | \$600 | \$600 |
| Pension liability | 150 | 100 |
| Other long-term liabilities | 100 | 400 |
| Shareholders' Equity | | |
| Common stock | \$500 | \$500 |
| Retained earnings | 100 | 0 |
| Accumulated other comprehensive income | | |
| Net unrealized holding gains on investments | 100 | 200 |
| Loss on investments | (74) | 0 |
| Loss on disposal | (52) | 0 |

Global Communication's pension liability is reported as a liability on the balance sheet. The pension liability is reported as a liability on the balance sheet. The pension liability is reported as a liability on the balance sheet.

in the balance sheet. Comprehensive income includes (a) net income and (b) other comprehensive income. Notice that we report net income that occurs in the current reporting period in the income statement and also report accumulated net income (that hasn't been distributed as dividends) in the balance sheet as retained earnings. Similarly, we report other comprehensive income as it occurs in the current reporting period (see Illustration 17-5) and also report accumulated other comprehensive income in the balance sheet. In its 2007 balance sheet, Global will report the amounts as shown in Illustration 17-7.

Look back to the schedule on page 846 to see how the net loss-pensions increased from \$55 million to \$74 million during 2007 and the schedule on page 844 to see how the net service cost decreased from \$56 million to \$57 million. The pension liability represents the underfunded status of Global's pension plan on the two dates.

Income Tax Considerations

We have ignored the income tax effects of the amounts in order to focus on the accounting. Note, though, that as gains and losses occur, they are reported net of tax (tax expense or a gain, tax savings for a loss) in the statement of comprehensive income.²⁰ Likewise, the accumulated other comprehensive income in the balance sheet also is reported net of tax.

Putting the Pieces Together

In preceding sections, we've discussed (1) the projected benefit obligation (including items due to periodic service cost, accrued interest, revised estimates, plan amendments, and the payment of benefits); (2) the plan assets (including changes due to investment returns, employer contributions, and the payment of benefits); (3) prior service cost; (4) gains and losses; (5) the periodic pension expense (comprising components of each of these); and (6) the funded status of the plan. These elements of a pension plan are interrelated. It's helpful to see how each element relates to the others. One way is to bring each part together in a *pension spreadsheet*. We do this for our 2007 Global Communications Illustration in Chapter 17.

²⁰ Initially, all or most other comprehensive income items are reported net of tax. If they would be reported net of tax.

| In millions | Informal Records | | Formal Records | | | |
|---------------------------------|------------------|-------------|--------------------|--------------------|-----------------|-------------------|
| | PBO | Plan Assets | Prior Service Cost | Net Pension Income | Pension Expense | Pension Liability |
| Balance, Jan. 1, 2007 | 65 | 45 | 0 | 0 | 0 | 20 |
| Service cost | | | | | 4 | 2 |
| Interest cost | 2 | | | | 0 | 4 |
| Expected return on assets | | 7 | | | 0 | 7 |
| Adjust for gain or loss | | 7 | | | 0 | 0 |
| Change in net pension liability | | | | 4 | 4 | 0 |
| Less on PBO | | | | 0 | 0 | 0 |
| Prior service cost | | | | 0 | 0 | 0 |
| Change in net pension liability | | | | | | 48 |
| Balance, Dec. 31, 2007 | 67 | 52 | 0 | 0 | 0 | 15 |

GRAPHIC 17-11
Pension Spreadsheet

When the PBO is more than the plan assets, we have a pension liability. If plan assets exceed the PBO, we have a pension asset.

Each change in value of the account in the formal records (the blue-shaded area) affects exactly two informal items.

We should spend several minutes studying this spreadsheet, focusing on the relationships among the elements that constitute a postretirement benefit pension plan. Notice that the first numerical column simply repeats the actuary's report of how the PBO changed during the year, as explained previously (Illustration 17-2). Likewise, the second column reproduces the changes in plan assets we discussed earlier (Illustration 17-3). We've also previously noted the changes in the prior service cost (page 844) and the net pension income (page 846) that are duplicated in the third and fourth columns. The fifth column repeats the calculation of the 2007 pension expense we determined earlier (page 846), and the cash contribution to the pension fund is the sole item in the next column.

The last column shows the changes in the funded status of the plan. Be sure to notice that the funded status is the difference between the PBO (column 1) and the plan assets (column 2). That means that each of the changes we see in either of the first two columns also is reflected as a change in the funded status in the last column. For example, we noted earlier that when Global added \$46 million to its plan assets, the pension liability decreased since it's the excess of the PBO over plan assets. We see that result in our spreadsheet.

Notice that each change in a formal account (blue-shaded columns) is reflected in exactly two of these columns. Any of the changes that affect the pension liability (or asset) also is reported in one of the first two (pink) columns due to the relationship described in the previous paragraph.

DECISION MAKERS' PERSPECTIVE

Although financial statement items are casualties of the political compromises of SFAS 87, information provided in the disclosure notes fortunately makes up for some of the deficiencies. SFAS 32 revised the pension disclosure requirements.³¹ Focused among the useful disclosures are changes in the projected benefit obligation, changes in the fair value of plan assets, and a breakdown of the components of the annual pension expense. Other information also is made available to make it possible for interested analysts to reconstruct the financial statements with pension assets and liabilities included. We'll look at specific disclosures after we discuss postretirement benefits other than pensions because the two types of plans are reported together.



³¹ FASB Statement of Financial Accounting Standards No. 32, *Financial Accounting Standards Board*, 2001. (FASB No. 32).

[illegible]

Investors and creditors must be cautious of the nontraditional treatment of pension information when developing financial ratios as part of an analysis of financial statements. Various elements of pensions that are not reported separately on the balance sheet and income statement (PBO, plan assets, gains and losses) can be included in ratios such as the debt to equity ratio or return on assets, but only by deliberately obtaining those numbers from the footnotes and adjusting for imputation in the ratios. Similarly, nonrecognition provisions that will be discussed regarding pension expense include the impact on interest and return on assets. Form 990, which is discussed in Chapter 4 and discussed in other chapters, also is influenced by amounts reported in pension disclosures. Companies with relatively sizeable unrecognized pension costs (prior service cost, net gain or loss) can be expected to exhibit a relatively high "transitory" earnings component. Recall that transitory earnings are expected to be less predictive of future earnings than the "persistent" earnings component. ■

To cut down on cumbersome paperwork and lessen their exposure to the risk posed by defined benefit plans, many companies are providing defined contribution plans instead. Sometimes the motivation to terminate a plan is to take advantage of the excess funding position of many plans that was created by the stock market boom of the 1980s and 1990s and to divert these assets to another purpose. This trend was given impetus in 1982 when **McKesson Medical Group** took over ailing A&P and used the acquired company's excess pension plan assets to finance its turnaround. Since then, so-called reversion assets have been used, not only to takeover but by existing management as well. For example, **ExxonMobil** recently used \$1.6 billion from its \$5.6 billion pension fund to bolster operations during a period of depressed oil prices in 1986. Asset reversions are not as common now as in the 1980s largely because of excise taxes on amounts recovered when plans are terminated and the relative insulation taken by Congress to limit terminations.

Retirement Plans Go on!

[illegible]

PENSION PLANS

Allied Services, Inc. has a noncontributory defined benefit pension plan. Pension plan assets had a fair market value of \$909 million at December 31, 2006.

On January 3, 2007, Allied amended the pension formula to increase benefits for each service year. By making the amendment retroactive to prior years, Allied incurred a prior service cost of \$75 million, adding to the previous projected benefit obligation of \$875 million. The prior service cost is to be amortized (expensed) over 15 years. The service cost at 1/3/07 was \$10 million for 2007. Both the actuary's discount rate and the expected rate of return on plan assets were 6%. The actual rate of return on plan assets was 10%.

11. Display are Accounting for Incidents and Characteristics of Defect Brachytherapy Plugs and for Treatment Deviation" (2002)

December 31, 2007, \$1.6 million was contributed to the pension fund and \$2.2 million was paid to retired employees. As a result, the liability increased. The previous assumption increases the PBO (liability) by \$1.2 million. The net loss at the beginning of the year was \$1.0 million.

At the end of the reporting period as of December 31, 2007, the following amounts are reported: projected benefit obligation, plan assets, and pension expense.

| (\$ in millions) | Projected Benefit
Obligation | Plan Assets | Pension
Expense | SC 7000 |
|---|---------------------------------|-------------|--------------------|---------|
| Balance at Jan. 1 | \$ 875 | \$900 | \$ 0 | |
| Prior service cost | 75 | | | |
| Service cost | 24 | | 24 | |
| Interest cost $[(\$875 + 75) \times 8\%]$ | 76 | | 76 | |
| Return on plan assets: | | | | |
| Actual $[(\$900 \times 10\%)]$ | | 90 | | |
| Expected $[(\$900 \times 8\%)]$ | | | (72) | |
| Amortization of prior service cost $(\$75 \div 15)$ | | | 5 | |
| Amortization of net loss pensions | | | 0 | |
| Gain on PBO | 10 | | | |
| Cash contribution | | 16 | | |
| Retirement payments | (22) | (22) | | |
| Balance at Dec. 31 | \$7,045 | \$954 | \$40 | |

At the end of the reporting period as of December 31, 2007, the following amounts are reported: projected benefit obligation, plan assets, and pension expense.

At the end of the reporting period as of December 31, 2007, the following amounts are reported: projected benefit obligation, plan assets, and pension expense.

POSTRETIREMENT BENEFITS OTHER THAN PENSIONS

PART E

We just discussed how companies have pension plans that provide for the future payments of retirement benefits to compensate employees for their current services. Many companies also furnish *other postretirement benefits* to their retired employees. These may include medical coverage, dental coverage, life insurance, group legal services, and other benefits. By far the most common is health care benefits. One of every three U.S. workers in medium- and large-size companies participates in health care plans that provide for coverage contributions and retirement. The aggregate impact is considerable; the total obligation for U.S. corporations is about \$500 billion.

Prior to 1993, employers accounted for postretirement benefits costs on a pay-as-you-go basis, meaning the expense each year was simply the amount of insurance premiums or medical claims paid, depending on the way the company provided health care benefits. SFAS 106 requires a completely different approach. The expected future health care costs for retirees now must be recognized as an expense over the years necessary for employees to become entitled to the benefits.²⁴ This is the accrual basis that also is the basis for pension accounting.

In fact, accounting for postretirement benefits is similar in most respects to accounting for pension benefits. This is because the two forms of benefits are fundamentally similar. Each is a form of deferred compensation earned during the employee's service life and each can be estimated as the present value of the cost of providing the expected future benefits. General Motors described its plan as shown in Graphic 7-13.

Graphic 7-13: General Motors' Pension and Postretirement Benefits Plan. General Motors' Pension and Postretirement Benefits Plan. General Motors' Pension and Postretirement Benefits Plan.

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GRAPHIC 17-13

Disclosures—General Motors

Note 5: Other Postretirement Benefits (in part)

The calculation and accrual of the net periodic benefit cost for the pension and other postretirement plans are provided to customers in the annual report. The net periodic benefit cost for the pension plan is calculated as the sum of the service cost, interest cost, expected return on plan assets, and actuarial gain or loss. The net periodic benefit cost for the other postretirement plans is calculated as the sum of the service cost, interest cost, and actuarial gain or loss. The net periodic benefit cost for the pension plan is \$1.1 billion, and the net periodic benefit cost for the other postretirement plans is \$0.2 billion.

Despite the similarities, though, there are a few differences in the characteristics of the benefits, but necessary differences in accounting treatment. Because accounting for the two types of retiree benefits is so nearly the same, our discussion in this portion of the chapter will emphasize the differences. This will allow you to use what you learned earlier in the chapter regarding pension accounting as a foundation for learning how to account for the postretirement benefits, supplementing that common base only when necessary. Focusing on the differences also will reinforce your understanding of pension accounting.

What Is a Postretirement Benefit Plan?

Before addressing the accounting ramifications, let's look at a typical retiree health care plan.¹⁶ First, it is important to distinguish retiree health care benefits from health care benefits provided during an employee's working years. The annual cost of providing retiree health care benefits is simply part of the annual compensation expense. However, many companies offer coverage that continues into retirement. It is the deferred aspect of these postretirement benefits that sets them apart from other benefits.

Usually a plan requires the retiree to complete a certain number of years of service, or reaching a particular age, or both. For instance, a plan might specify that employees are eligible for postretirement benefits after both working 20 years and reaching age 62 while in service. Eligibility requirements and the nature of benefits usually are defined by a written plan, or sometimes only by company practice.

POSTRETIREMENT HEALTH BENEFITS AND PENSION BENEFITS COMPARED

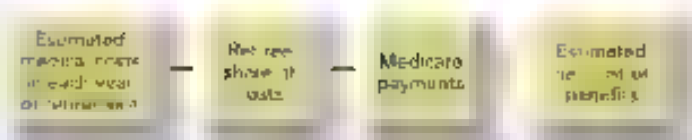
Keep in mind that retiree health benefits differ fundamentally from pension benefits in several important respects:

1. The amount of *pension* benefits generally is based on the number of years an employee works for the company, so that the longer the employee works, the greater are the benefits. On the other hand, the amount of *postretirement health care* benefits typically is unrelated to service. It is usually an all-or-nothing plan in which a certain level of coverage is promised upon retirement, independent of the length of service beyond that necessary for eligibility.
2. Although coverage might be identical, the cost of providing the coverage might differ significantly from retiree to retiree and from year to year because of differing medical needs.
3. Postretirement health care plans often require the retiree to share in the cost of coverage through monthly contribution payments. For instance, a company might pay 80% of insurance premiums, with the retiree paying 20%. The net cost of providing coverage is reduced by these contributions as well as by any portion of the cost paid by Medicare or other insurance.
4. Coverage often is provided to spouses and eligible dependents.

DETERMINING THE NET COST OF BENEFITS

To determine the postretirement benefit obligation and the postretirement benefit expense, the company's actuary first must make estimates of what the postretirement benefit cost will

¹⁶ Throughout this discussion, we focus on health care benefits. Because these are by far the most common type of postretirement benefit other than pensions, but the concepts we discuss apply equally to other forms of postretirement benefits.



GRAPHIC 17-14
Estimating the Net Cost of Benefits

For current employees, then, as illustrated in Graphic 17-14 above, contributions to those by employees are deducted as well as Medicare's share of the costs (for retirement when the retiree will be 65 or older), to determine the estimated net cost of benefits to employer.

Remember, postretirement health care benefits are anticipated actual costs of providing the required health care, rather than an amount estimated by a defined benefit formula. This makes estimates inherently more imprecise, particularly because health care costs in general are extremely difficult to forecast. And, since postretirement health care benefits are partially paid by the retiree and by Medicare, these cost-sharing amounts also be estimated as well.

On the other hand, estimating postretirement benefits costs is similar in many ways to estimating pension costs. Both estimates entail a variety of assumptions to be made by the company's actuary. Many of these assumptions are the same, for instance, but require estimates of

- A discount rate applied to future plan assets if the plan is underfunded
- Employee turnover expected at retirement age
- Expected compensation increases (if the plan is pay-related)
- Expected age of death
- Number and ages of beneficiaries and dependents

Of course, the relative importance of some estimates is different from that for pension plans, especially since health care costs tend to rise at a much greater rate than other plan costs. Additional assumptions become necessary as a result of differences between pension plans and other postretirement benefit plans. Some factors to consider when estimating

1. The current cost of providing health care benefits at each age that participants might receive benefits
2. Demographic characteristics of plan participants that might affect the amount and timing of benefits
3. Benefit coverage provided by Medicare, other insurance, or other sources that will reduce the net cost of employer-provided benefits
4. The expected health care cost trend rate¹¹

Taking these assumptions into account, the company's actuary estimates what the net cost of postretirement benefits will be for current employees in each year of their expected retirement. The discounted present value of those costs is the expected postretirement benefit obligation.

Many of the assumptions required to estimate health care benefits at retirement age are the same as those required to estimate pension benefits.

Future additional and Medicare costs must be estimated as well as the health care cost benefit. Besides, the company must estimate a trend rate.

The postretirement benefit obligation is the discounted present value of the benefits during retirement.

Postretirement Benefit Obligation

There are two related obligation amounts. As indicated in Graphic 17-15, one measures the total obligation and the other refers to a specific portion of the total.

• 1010

Expected postretirement benefit obligation (EPBO): The company's estimate of the total postretirement benefits at their distribution period value as if they were received by the employee.

Accumulated postretirement benefit obligation (APBO): The portion of the EPBO attributable to employee service to date.

GRAPHIC 17-15
Two Views of the Obligation for Postretirement Benefits Other Than Pensions

¹¹ The trend rate is the expected percentage increase in the cost of health care services over time. It is often estimated by comparing historical increases in health care costs with expected future increases.

The accumulated postretirement benefit obligation (APBO) is analogous to the projected benefit obligation (PBO) for pensions. Like the PBO, the APBO is an off-balance sheet obligation, reported only in the disclosure notes.

MEASURING THE OBLIGATION

To illustrate, assume the actuary estimates that the net cost of providing health care benefits to Jennifer Furrow (our illustration employee from earlier in the chapter) during her retirement years has a present value of \$10,842 as of the end of 2005. This is the EPBO. If the benefits (and therefore the costs) relate to an estimated 35 years of service²⁵ and 10 of those years have been completed, the APBO would be

$$\begin{array}{rcl} \$10,842 & \times & \frac{10}{35} \\ \text{EPBO} & \text{Fraction attributed} & \\ & \text{to service to date} & \\ & & = \$3,098 \end{array} \quad \text{APBO}$$

\$3,098 represents the portion of the EPBO related to the first 10 years of the 35-year service period.

If the assumed discount rate is 6%, a year later the EPBO will have grown to \$11,493 simply because of a year's interest accruing at that rate ($\$10,842 \times 1.06 = \$11,493$).²⁶ Because there is no increase in the EPBO for service, because unlike the obligation in most pension plans, the total obligation is not increased by an additional year's service.

The APBO, however, is the portion of the EPBO related to service up to a particular date. Consequently, the APBO will have decreased both because of interest and because the service fraction will be higher (service cost).

$$\begin{array}{rcl} \$11,493 & \times & \frac{1}{36} \\ \text{EPBO} & \text{Fraction attributed} & \\ & \text{to service to date} & \\ & & = \$3,192 \end{array} \quad \text{APBO}$$

\$3,192 represents the portion of the EPBO related to the first 11 years of the 35-year service period.

The two elements of the increase in APBO can be separated as follows:

| | |
|---|----------------|
| APBO at the beginning of the year | \$3,098 |
| Interest cost: $\$3,098 \times 6\%$ | 186 |
| Service cost: $\$11,493 \times \frac{1}{36}$, portion of EPBO attributed to the year | 320 |
| APBO at the end of the year | <u>\$3,604</u> |

The APBO increases because of interest and service cost. The APBO and, by the portion of the EPBO attributed to that year.

ATTRIBUTION

Attribution is the process of assigning the cost of benefits to the years during which those benefits are assumed to be earned by employees. The approach required by *SSAS 106* is to assign an equal fraction of the EPBO to each year of service from the employee's date of hire to the employee's full eligibility date.²⁷ This is the date the employee has performed all the service necessary to have earned all the retiree benefits estimated to be received by the employee.²⁸ In our earlier example, we assumed the attribution period was 35 years and accordingly accrued 1/35 of the EPBO each year. The amount accrued each year increases both the APBO and the postretirement benefit expense. In Illustration 7-8 we see how the attribution accrual period was determined.

Some critics of *SSAS 106* feel there is a fundamental inconsistency between the way we measure the benefits and the way we assign the benefits to specific service periods. The benefits (EPBOs) are measured with the conclusion that the employee may work beyond the full eligibility date; however, the attribution period does not include years of service after the date. The counterargument is the fact that at the full eligibility date the employee will stop

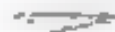
The cost of benefits is attributed to the years during which those benefits are assumed to be earned by employees.

The attribution period is the number of years of service beyond the full eligibility date even if the employee works beyond that date.

²⁵ The 35-year period is the number of years of service beyond the full eligibility date. The attribution period is the number of years of service beyond the full eligibility date even if the employee works beyond that date.

²⁶ The 6% rate is the assumed discount rate. The attribution period is the number of years of service beyond the full eligibility date even if the employee works beyond that date.

²⁷ The attribution period is the number of years of service beyond the full eligibility date even if the employee works beyond that date.



Example: Farrow was hired by Global Communications at age 22 at the beginning of 1996 and expected to retire at the end of 2035 at age 61. The retirement period is estimated to be 35 years.

Global's employees are eligible for postretirement health care benefits after both reaching age 56 while in service and having worked 20 years.

Since Farrow became fully eligible at age 56 (the end of 2010), retiree benefits are attributable to the 15-year period from her date of hire through that date. Graphically, the situation can be described as follows:



NOTE: Recognize this as the situation used earlier in the chapter to illustrate pension accounting.

Now, the right to receive the full benefits expected under the plan and the amount of the benefits will not increase with service beyond that date.¹⁸

Accounting for Postretirement Benefit Plans Other Than Pensions

As we just discussed, it's necessary to attribute a portion of the accumulated postretirement benefit obligation to each year as the service cost for that year as opposed to measuring the actual benefit expense each year during the year as we did for pension plans. That's due to the fundamental nature of how the postretirement plans under which we are responsible for benefits are structured. Employees must wait until they become fully eligible for benefits. Unlike pension plans under which employees earn additional benefits each year until they retire,

ILLUSTRATION 17-8

Determining the Attribution Period

Attribution Period



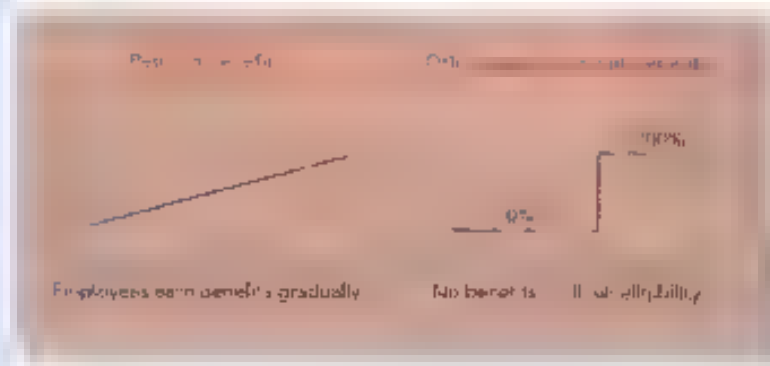
LO 1



GRAPHIC 17-16

Measuring Service Cost

Employees earn benefits gradually. No benefits until fully eligible.



The way we measure service cost is the primary difference between accounting for pensions and for other postretirement benefits. Otherwise, though, accounting for the two is virtually identical.

NOTE: The way we measure service cost is the primary difference between accounting for pensions and for other postretirement benefits. Otherwise, though, accounting for the two is virtually identical.

14. 2007 Before doing so, however, we can anticipate (a) the FPRQ to be \$ 1,493 x 1.06, or \$1,582.52 (b) the APBO to be 4% of that amount, or \$4,177 and (c) the 2007 service cost to be that amount, or \$1,582.52. Assumption: We are and are set up with the following by calculation.

[illegible]

Calculating the APBC and the postretirement benefit expense at the end of 2007, 12
 months after being hired, requires first estimating the EPBC.
 Steps to calculate the EPBC (to APBC) and the postservice credit expense at
 12/31/07 are as follows:

4. Estimate the cost of retiree benefits in each year of the expected retirement period. ~~and the anticipated Medicare reimbursements and the anticipated decrease in the net cost to the employer in each year of the expected retirement period.~~
 - a. Fit the stream value in each year's net benefit cost as of the retirement date.
 - b. Find the present value of the total net benefit cost as of the current date. This is the
5. Multiply the FFR by the distribution factor (service to asset ratio factor with a 10% to the 2. The cost in any year is simply the add's worth of the FFRQ.
6. Multiply the FFR by the cost in any year.

ILLUSTRATION 17-9

Deriving the
Principle
Behind Obligation

The FBI is, he said, confident "we will be able to identify the person or persons responsible for the attack."

The fraction of the
 E-20 ...
 b. ...
 The ...

7116 1.20 1.00 0.80 0.60
 7117 1.20 1.00 0.80 0.60
 7118 1.20 1.00 0.80 0.60
 7119 1.20 1.00 0.80 0.60

The steps are demonstrated in Bluebeam® 7-9A

Am 19. April 1994 wurde die
 neu erstellte Broschüre
 über die Nutzung der
 öffentlichen Bibliothek
 in der Gemeinde
 veröffentlicht.

Present value
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787

| Year | Age | Net Benefit | Present Value at 2035 |
|------|-----|-------------|-----------------------|
| 2036 | 62 | 5,000 | 4,777 |
| 2037 | 63 | 5,600 | 4,984 |
| 2038 | 64 | 6,300 | 5,290 |
| 2039 | 65 | 3,000 | 2,376 |
| - | - | - | - |
| 2054 | 80 | 9,580 | 3,186 |
| 2055 | 81 | 10,300 | 3,212 |
| | | | \$62,269 |

ILLUSTRATION 17-9A
EPEO, APBO, and
Service Cost in 2017

תשס"ח
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 תשס"ח
 תשס"ח

3. $\frac{d}{dt} \left(\frac{1}{2} m v^2 \right) = \frac{d}{dt} \left(\frac{1}{2} m \dot{x}^2 \right)$
 $= m \dot{x} \ddot{x} = m \dot{x} a$
 $= m \dot{x} \left(-\frac{k}{m} x \right) = -k x \dot{x}$
 $= -k \int \dot{x} x dx = -\frac{k}{2} x^2 + C$
 $= -\frac{k}{2} x^2 + C$

The FBI in 2007 says
it is a "very rare" and
"highly unusual"

7. 478: 100
point: 100
100 100 100 100
100 100

94 = 11 14 18
 96 9 14 18 20
 97 10 14 18 20
 98 10 14 18 20
 99 10 14 18 20



ILLUSTRATION 17-9A concluded

a. Present value ($n = 25$, $i = 6\%$) of postretirement benefits at 2007 is
 $\$47,269 - 95\% = \$4,177$

b. $\$12,182 \times \frac{1}{2} = \$4,177$, APBC

c. $\$12,182 \times \frac{1}{2} = \348 (Service cost)



DECISION MAKERS' PERSPECTIVE

When they analyze financial statements, investors and creditors should be wary of the nonstandard way companies report pension and other postretirement information. Recall that in its balance sheet, firms do not separately report the benefit obligation and the plan assets. Also, companies have considerable latitude in making the several assumptions needed to estimate the contingents of postretirement benefit plans. Fortunately, information provided in the disclosure notes makes up for some of the deficiency in balance sheet information and makes possible for interested analysts to modify their analysis. As for pensions, the choices companies make for the discount rate, expected return on plan assets, and the compensation growth rate can greatly impact postretirement benefit expense and earnings quality. The disclosures required are very similar to pension disclosures. In fact, disclosures for the two types of retirement benefits typically are combined.³³ Disclosures include:

- Descriptions of the plans
- Estimates of the obligations (PBO, ABO, vested benefit obligation, FPBC, and APBC)
- The percentage of total plan assets for each major category of assets (equity securities, debt securities, real estate, other) as well as a description of investment strategies, including any target asset allocations and risk management practices.
- A breakdown of the components of the annual pension and postretirement benefit expenses for the years reported.
- The discount rates, the assumed rate of compensation increases used to measure the PBO, the expected long-term rate of return on plan assets, and the expected rate of increase in future medical and dental benefit costs.
- Estimated benefit payments presented separately for the next five years and in the aggregate for years 6–10.
- Estimate of expected contributions to fund the plan for the next year.
- Disclosures related to the modifications SFAS 158 introduced, including (a) any impact to the net gain or net loss and prior service cost arising during the period, (b) the accumulated amounts of these components of accumulated other comprehensive income, and (c) the amounts of those balances expected to be amortized in the next year.
- Other information to make it possible for interested analysts to reconstruct the financial statements with plan assets and liabilities included. ■

CONCEPT REVIEW EXERCISE

OTHER POSTRETIREMENT BENEFITS

Technology Group, Inc., has an unfunded retiree health care plan. The actuary estimates net costs of providing health care benefits to a particular employee during his retirement will have a present value of \$24,000 as of the end of 2007 (the EPBO). The benefits and therefore the expected postretirement benefit obligation relate to an estimated 35 years of service, and 12 of those years have been completed. The interest rate is 6%.

Required

Pertaining to the one employee only:

1. What is the accumulated postretirement benefit obligation at the end of 2007?
2. What is the expected postretirement benefit obligation at the end of 2010?

³³ See, for example, *Journal of the American Institute of Certified Public Accountants*, 115(1), 2005, pp. 44–45, 106.

3. What is the service cost to be included in 2008 postretirement benefit expense?
4. What is the interest cost to be included in 2008 postretirement benefit expense?
5. What is the accumulated postretirement benefit obligation at the end of 2008?
6. Show how the APBO changed during 2008 by reconciling the beginning and ending balances.
7. What is the 2008 postretirement benefit expense, assuming no net gain or losses and no prior service cost?

What is the accumulated postretirement benefit obligation at the end of 2007?

SOLUTION

$$\begin{array}{rclcl} \$24,000 & \times & 1\% & = & \$2,400 \\ \text{EPBO} & & \text{Fraction} & & \text{APBO} \\ \text{2007} & & \text{earned} & & \text{2007} \end{array}$$

2. What is the expected postretirement benefit obligation at the end of 2008?

$$\begin{array}{rclcl} \$24,000 & \times & 1.06 & = & \$25,440 \\ \text{EPBO} & & \text{To accrue} & & \text{EPBO} \\ \text{2007} & & \text{interest} & & \text{2008} \end{array}$$

3. What is the service cost to be included in 2008 postretirement benefit expense?

$$\begin{array}{rclcl} \$25,440 & \times & .1\% & = & 25 \\ \text{EPBO} & & \text{Earned in} & & \text{Service} \\ \text{2008} & & \text{2008} & & \text{cost} \end{array}$$

4. What is the interest cost to be included in 2008 postretirement benefit expense?

$$\$8,000 \text{ (beginning APBO)} \times 6\% = \$480$$

5. What is the accumulated postretirement benefit obligation at the end of 2008?

$$\begin{array}{rclcl} \$25,440 & \times & 1\% & = & \$2,544 \\ \text{EPBO} & & \text{Fraction} & & \text{APBO} \\ \text{2008} & & \text{earned} & & \text{2008} \end{array}$$

6. Show how the APBO changed during 2008 by reconciling the beginning and ending balances.

| | |
|---|----------------|
| APBO at the beginning of 2008 (from req. 1) | \$8,000 |
| Service cost (from req. 3) | 707 |
| Interest cost (from req. 4) | 480 |
| APBO at the end of 2008 (from req. 5) | <u>\$9,187</u> |

7. What is the 2008 postretirement benefit expense, assuming no net gain or losses and no prior service cost?

| | |
|--|----------------|
| Service cost | \$ 707 |
| Interest cost | 480 |
| Actual return on the plan assets | (not funded) |
| Adjusted for gain or loss on the plan assets | (not funded) |
| Amortization of prior service cost | none |
| Amortization of net gain or loss | none |
| Postretirement benefit expense | <u>\$1,187</u> |

PERSPECTIVE

In the United States, postretirement benefits are accrued in a manner similar to pensions. In the United Kingdom, accounting is similar to the United States. In most other countries, little official guidance is offered.

In many countries, postretirement benefits other than pensions are rare. In Japan, for instance, the prevalence of government-sponsored plans has encouraged most Japanese companies not to provide separate benefits.



FINANCIAL REPORTING CASE SOLUTION

1. Why is underfunding not a concern in your present employment? (p. 831) In a defined contribution plan, the employer is not obliged to provide benefits beyond the annual contribution to the employees' plan. No liability is created. Unlike retirement benefits paid in a defined benefit plan, the employee's retirement benefits in a defined contribution plan are totally dependent on how well invested assets perform in the marketplace.
2. Were you correct that the pension liability is not reported on the balance sheet? What is the liability? (p. 833) Yes. The pension liability is measured (in three ways) and tracked formally but not reported on the balance sheet. It is disclosed, however, in the notes. United Dynamics' PBO in 2007 is \$2,828 million.
3. What is the amount of the plan assets available to pay benefits? What are the factors that can cause that amount to change? (p. 833) The plan assets at the end of 2007: \$2,807 million. A trustee accepts employer contributions, invests the contributions, and realizes the earnings on the investments and pays benefits from the plan assets. So the amount is increased each year by employer cash contributions and hopefully a return on assets invested. It is decreased by amounts paid out to retired employees.
4. What does the "pension asset" represent? Are you interviewing with a company whose pension plan is severely underfunded? (p. 841) The pension asset is not the plan assets available to pay pension benefits. Instead, it's the net difference between those assets and the pension obligation. United Dynamics' plan assets exceed the pension obligation in each year presented.
5. How is the pension expense influenced by changes in the pension liability and plan assets? (p. 842) The pension expense reported on the income statement is a composite of periodic changes that occur in both the pension obligation and the plan assets. For United Dynamics in 2007, the pension expense included the service cost and interest cost, which are changes in the PBO and the return on plan assets. It also included an amortized portion of prior service costs (a previous change in the PBO) and of net gains (gains and losses) from changes in both the PBO and plan assets. ■

THE BOTTOM LINE

1. Pension plans are arrangements designed to provide income to individuals during their retirement years. *Defined contribution plans* promise fixed annual contributions to a pension fund, without further commitment regarding benefit amounts at retirement. *Defined benefit plans* promise fixed retirement benefits defined by a designated formula. The employer sets aside cash each year to provide sufficient funds to pay promised benefits.
2. The *accumulated benefit obligation* is an estimate of the discounted present value of retirement benefits earned so far by employees, applying the plan's pension formula to *existing* compensation levels. The *vested benefit obligation* is the portion of the accumulated benefit obligation that plan participants are entitled to receive regardless of continued employment. The *projected benefit obligation* estimates retirement benefits by applying the pension formula to *projected* future compensation levels.
3. The PBO can change due to the accumulation of *service cost* from year to year, the *actual* of *interest* on time passes, making past commitments retrospective (as prior service cost), and periodic adjustments when estimates change (gains and losses). The obligation is reduced as benefits actually are paid to retired employees.
4. The plan assets consist of the accumulated balance of the annual employer contributions plus the return on the investments less benefits paid to retirees.
5. The difference between an employer's obligation (PBO for pensions, APBO for non-pension retirement benefit plans) and the resources available to satisfy that obligation (the plan assets) is the *funded status* of the pension plan. The employer must report the *funded status* of the plan in the balance sheet as a pension liability if the obligation exceeds the plan assets or as a pension asset if the plan assets exceed the obligation.
6. The pension expense is a composite of periodic changes in both the pension obligation and the plan assets. Service cost is the increase in the PBO attributable to employee service.

is the primary component of pension expense. The interest and return-on-assets components are financial items created only because the pension payment is delayed and the obligation is funded currently. Prior service cost is recognized over employees' future service period. Also, neither a loss (gain) on the PBO nor a loss (gain) on plan assets is immediately recognized in pension expense; they are recognized on a delayed basis to achieve income smoothing.

- † Returning pension expense causes the pension liability/asset to change by the service cost, the interest cost, and the expected return on plan assets. Any amortization amounts included in the expense will reduce the *accumulated other comprehensive income* balances being amortized, e.g., net loss prior service cost. Similarly, the pension liability is reduced (or pension asset increased) by the actual cash investment to plan assets. New losses and gains (as well as any new prior service cost should it occur) are recognized as other comprehensive income and change the pension liability.
8. The various elements of a pension plan—projected benefit obligation, plan assets, prior service cost, gains and losses, pension expense, and the funded status of the plan—are interrelated. One way to see how each element relates to the other is to bring each part together in a *pension spreadsheet*.
9. Accounting for postretirement benefits is similar in most respects to accounting for pension benefits. Like pensions, other postretirement benefits are a form of deferred compensation. Unlike pensions, their cost is attributed to the years from the employee's date of hire to the full eligibility date.
10. The expected postretirement benefit obligation (EPBO) is the actuary's estimate of the total expected benefit if their discounted present value expected to be received by plan participants. The accumulated postretirement benefit obligation (APBO) is the portion of the EPBO attributed to employee service to date.
11. The components of postretirement benefit expense are essentially the same as those for pension expense. ■

SERVICE METHOD OF ALLOCATING PRIOR SERVICE COST

When amortizing prior service cost, our objective is to match the cost with employee service. The straight-line method described in this chapter allocates an equal amount of the prior service cost to each year of the 15-year average service period of affected employees. But consider this: Fewer of the affected employees will be working for the company toward the end of that period than at the beginning. Some probably will retire or quit in each year following the amendment.

An allocation approach that reflects the declining service pattern is called the *service method*. This method allocates the prior service cost to each year in proportion to the fraction of the total remaining service years worked in each of those years. To do this, it's necessary to estimate how many of the 2,000 employees working at the beginning of 2016 when the amendment is made will still be employed in each year after the amendment.

Let's suppose, for example, that the actuary estimates that a declining number of these employees will still be employed in each of the next 28 years as indicated in the abbreviated schedule below. The portion of the prior service cost amortized to pension expense each year is \$50 million times a declining fraction. Each year's fraction is that year's service divided by the 28-year total (30,000). This is demonstrated in Graphs 7A–3.

Conceptually, the service method achieves better matching of the pension benefits to the service provided than the straight-line method. However, Graph 7A-3² permits the company to amortize the prior service cost at least as quickly. The straight-line method meets this condition and is the approach most often used in practice. In our illustration, the cost is completely amortized over 15 years rather than the 28 years required by the

The service method
amortizes the
prior service cost
over 15 years
each year

²Employees Accounting for Pensions, *Statement of Financial Accounting Standards No. 27*, Stamford, Conn.: FASB, 1991, par. 36.

service method. The 15-year average service life is simply the total estimated service year divided by the total number of employees in the group.

$$\frac{10,500 \text{ years}}{\text{Total number of service years}} \div \frac{2,000}{\text{Total number of employees}} = \frac{15 \text{ years}}{\text{Average service years}}$$

GRAPHIC 17A-1
Service Method of
Amortizing Prior
Service Cost

By the service method, the prior service cost is amortized over the average service life of the employees who are expected to receive the benefits of the plan.

| Year | Number of Employees Still Employed (assumed for the illustration) | Fraction of Total Service Years | Prior Service Cost | Amount Amortized |
|---------------|---|---------------------------------|--------------------|------------------|
| 2006 | 1,000 | 1/1000 | \$60 | = \$.6 |
| 2007 | 1,000 | 1/1000 | 60 | = .6 |
| 2008 | 800 | 1/800 | 60 | = .75 |
| 2009 | 600 | 1/600 | 60 | = 1.0 |
| 2010 | 500 | 1/500 | 60 | = 1.2 |
| 2011 | 400 | 1/400 | 60 | = 1.5 |
| 2012 | 300 | 1/300 | 60 | = 2.0 |
| 2013 | 200 | 1/200 | 60 | = 3.0 |
| Totals | 50,000 | 1.0 | \$600 | \$600 |

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 17-1 What is a pension plan? What motivates a corporation to offer a pension plan for its employees?
- Q 17-2 Qualify qualified plans and IRAs and benefits. What is the special tax treatment and what qualifies pension plans for these benefits?
- Q 17-3 Laramie Corporation has a pension plan in which the corporation makes all contributions and employees receive benefits at retirement based on the balance in their accumulated pension fund. What type of pension plan does Laramie have?
- Q 17-4 What is the vested benefit obligation?
- Q 17-5 Differentiate between the accumulated benefit obligation and the projected benefit obligation.
- Q 17-6 Name five events that might change the balance of the PBO.
- Q 17-7 Name three events that might change the balance of the plan assets.
- Q 17-8 What are the components that might be included in the calculation of net pension cost recognized for a period by an employer sponsoring a defined benefit pension plan?
- Q 17-9 Define the service cost component of the periodic pension expense.
- Q 17-10 Define the interest cost component of the periodic pension expense.
- Q 17-11 The return on plan assets is the difference in plan assets at the beginning and end of the period, divided by the beginning plan assets. How is it included in the calculation of the periodic pension cost?
- Q 17-12 Define prior service cost. How is it reported in the financial statements? How is it included in pension expense?
- Q 17-13 How should gains or losses related to pension plan assets be recognized? How does this requirement compare to that for gains or losses related to the pension obligation?
- Q 17-14 Is a company's PBO reported on the balance sheet? Its plan assets? Explain.
- Q 17-15 What are components of pension expense on the income statement and the pension expense?
- Q 17-16 Which are the components of pension expense that involve delayed recognition?
- Q 17-17 Evaluate this statement: The excess of the actual return on plan assets over the expected return decreases the employer's pension cost.

- Q 17-18 When accounting for pension costs, how should the projected unit credit pension fund be recorded?
- Q 17-19 FPC Inc. revised its estimate of future salary levels, resulting in PBO estimate to increase by \$3 million from \$100 million to \$103 million. How should this be recorded?
- Q 17-20 A pension plan is underfunded when the employer's obligation (PBO) exceeds the resources available to satisfy that obligation (plan assets) and overfunded when the opposite is the case. How is this funded status reported on the balance sheet if plan assets exceed the PBO? If the PBO exceeds plan assets?
- Q 17-21 What are two ways to structure the obligation for postretirement benefits other than pensions? Define these measurements.
- Q 17-22 How are the costs of providing postretirement benefits other than pensions reported?
- Q 17-23 The components of postretirement benefit expense are similar to the components of pension expense. In what fundamental way does the service-cost component differ between these two expenses?
- Q 17-24 The FICA for Health Insurance of the year 2007 was determined by the actuary to be \$2,000 as it relates to employee Will Lawson. Lawson was hired at the beginning of 2005. He will be fully eligible to retire with health care benefits in 5 years but is expected to retire in 25 years. What is the AFBO as it relates to Will Lawson?

BRIEF EXERCISES

BE 17-1
Compute the projected benefit obligation.

The projected benefit obligation was \$100 million at the beginning of the year. Service cost for the year was \$10 million. At the end of the year, pension benefits paid by the trustee were \$6 million and there were no pension-related other comprehensive income accounts requiring amortization. The actuary's discount rate was 5%. What was the amount of the projected benefit obligation at year-end?

BE 17-2
Compute the projected benefit obligation.

The projected benefit obligation was \$90 million at the beginning of the year and \$95 million at the end of the year. At the end of the year, pension benefits paid by the trustee were \$6 million and there were no pension-related other comprehensive income accounts requiring amortization. The actuary's discount rate was 5%. What was the amount of the service cost for the year?

BE 17-3
Compute the net periodic pension cost.

The projected benefit obligation was \$80 million at the beginning of the year and \$85 million at the end of the year. Service cost for the year was \$10 million. At the end of the year, there was no prior service cost and a negligible net loss—pensions. The actuary's discount rate was 5%. What was the amount of the retiree benefit cost by the trustee?

BE 17-4
Compute the net periodic pension cost.

The projected benefit obligation was \$90 million at the beginning of the year and \$85 million at the end of the year. Service cost for the year was \$5 million. At the end of the year, pension benefits paid by the trustee were \$6 million. The actuary's discount rate was 5%. At the end of the year, the actuary revised the estimate of the percentage rate of increase in compensated levels to upcoming years. What was the amount of the prior service cost change?

BE 17-5
Changes in pension plan assets.

Pension plan assets were \$100 million at the beginning of the year. The return on plan assets was 5%. At the end of the year, retiree benefits paid by the trustee were \$6 million and cash invested in the pension fund was \$7 million. What was the amount of the pension plan assets at year-end?

BE 17-6
Compute pension plan assets.

Pension plan assets were \$80 million at the beginning of the year and \$83 million at the end of the year. The return on plan assets was 5%. At the end of the year, cash invested in the pension fund was \$5 million. What was the amount of the retiree benefits paid by the trustee?

BE 17-7
Compute pension plan assets.

Pension plan assets were \$100 million at the beginning of the year and \$104 million at the end of the year. At the end of the year, retiree benefits paid by the trustee were \$6 million and cash invested in the pension fund was \$7 million. What was the percentage rate of return on plan assets?

BE 17-8
Pension expense.

The projected benefit obligation was \$90 million at the beginning of the year. Service cost for the year was \$5 million. At the end of the year, pension benefits paid by the trustee were \$6 million and there were no pension-related other comprehensive income accounts requiring amortization. The actuary's discount rate

BE 17-9

Pension expense prior service cost

• 100

BE 17-10

Net gain

• 100

BE 17-11

Report of the financial status of pension plans

• 100

BE 17-12

Recording pension expense

• 100

BE 17-13

Recording pension expense

• 100

BE 17-14

Postretirement benefits determine the AFRB and service cost

• 100

BE 17-15

Postretirement benefits changes in the AFRB

• 100

was 5%. The actual return on plan assets was \$5 million although it was expected to be only \$4 million. What was the pension expense for the year?

The pension plan's assets over the year earned a prior service cost of \$20 million. Service cost over the year was \$10 million. At year-end, the plan's assets were \$50 million and \$40 million, respectively. At the end of the year, the company gave benefits to the retired pensioners. The actual return on plan assets was \$5 million although it was expected to be \$4 million. On average, employees remaining service life with the company is 10 years. What was the pension expense for the year?

The company's benefit obligation on plan assets was \$40 million and \$30 million respectively at the beginning of the year. At year-end, the company's assets were \$50 million and \$40 million, respectively. At the end of the year, the company gave benefits to the retired pensioners. The actual return on plan assets was \$5 million although it was expected to be \$4 million. On average, employees remaining service life with the company is 10 years. As a result of the net gain, what was the increase or decrease in pension expense for the year?

The company's benefit obligation on plan assets was \$40 million and \$30 million respectively at the beginning of the year. At the end of the year, the company gave benefits to the retired pensioners. The actual return on plan assets was \$5 million although it was expected to be \$4 million. On average, employees remaining service life with the company is 10 years. As a result of the net gain, what was the increase or decrease in pension expense for the year?

The Warren Group's pension expense is \$47 million. This amount includes a \$20 million service cost, a \$30 million interest cost, a \$35 million reduction for the expected return on plan assets, and a \$2 million increase in prior service cost. How much pension expense will the company report when the pension expense is recorded?

Andrews Medical reported a net loss position in last year's balance sheet. This year, the company revised its estimate of future salary levels causing its PBO estimate to decline by \$4 million. Also, the \$4 million actual return on plan assets fell short of the \$9 million expected return. How does this gain and loss affect Andrews Medical's statement of comprehensive income and balance sheet?

Prince Distribution, Inc., has an unfunded postretirement benefit plan. Medical care and life insurance benefits are provided to employees who render 10 years service and attain age 55 while in service. As the end of 2007, Jim Lukawski is 31. He was hired by Prince at age 23 (8 years ago) and is expected to retire in 2022. The expected postretirement benefit obligation for Lukawski at the end of 2007 is \$31,000 and \$24,000 at the end of 2008. Calculate the accumulated postretirement benefit obligation at the end of 2007 and 2008 and the service cost for 2007 and 2008 as pertaining to Lukawski.

In January 1, 2007, Medical Transport Company's accumulated postretirement benefit obligation was \$24 million. At the end of 2007, retiree benefit costs were \$3 million. Service cost for 2007 is \$2 million. Assumptions regarding the trend of future health care costs were revised at the end of 2007 causing the company to revise downward the estimate of the AFRB by \$4 million. The company's discount rate is 4%. Compute the amount of the accumulated postretirement benefit obligation at December 31, 2007.

EXERCISES

An alternate exercise and problem set is available on the text website: www.cengage.com/accounting

E 17-1

Changes in the PBO

• 100

Indicate by letter whether each of the events listed below increases (I), decreases (D), or has no effect (N) on an employer's projected benefit obligation.

Events

- Increase cost
- Amortization of prior service cost
- A decrease in the average life expectancy of employees
- An increase in the average life expectancy of employees
- A plan amendment that increases benefits is made retroactive to prior years
- An increase in the company's assumed discount rate
- Cash contributions to the pension fund by the employer
- Benefits are paid to retired employees
- Service cost

- 10 Return on plan assets during the year are better than expected.
 11 Return on plan assets during the year are higher than expected.

On January 1, 2007, Burston Corporation's projected benefit obligation was \$30 million. During 2007, pension benefits paid by the trustee were \$4 million. Service cost for 2007 is \$12 million. Pension plan assets (at fair value) increased during 2007 by \$6 million as expected. At the end of 2007, there was no prior service cost and a negligible balance in net loss-pensions. The actuary's discount rate was 10%.

Required:

Determine the amount of the projected benefit obligation at December 31, 2007.

Indicate by letter whether each of the events listed below increases (I), decreases (D), or has no effect (N) on an employer's periodic pension expense in the year the event occurs.

Events

1. Interest cost

2. Amortization of prior service cost

3. Excess of the expected return on plan assets over the actual return

4. Expected return on plan assets

5. A plan amendment that increases benefits available retroactive to prior years

6. Actuary's estimate of the PBO is increased

7. Cash contributions to the pension fund by the employer

8. Benefits are paid to retired employees

9. Settlement loss

10. Excess of the actual return on plan assets over the expected return

11. Amortization of net loss-pensions

12. Amortization of net gain-pensions

Harrison Fackliff's pension expense includes a service cost of \$ 6 million. Harrison began the year with a pension liability of \$24 million (underfunded pension plan).

Required:

Prepare the appropriate general journal entries to record Harrison's pension expense in each of the following independent situations regarding the other components of pension expense (\$ in millions):

- Interest cost, \$6; expected return on assets, \$4; amortization of net loss-pensions, \$2.
- Interest cost, \$6; expected return on assets, \$4; amortization of net gain-pensions, \$2.
- Interest cost, \$6; expected return on assets, \$4; amortization of net loss-pensions, \$2; amortization of prior service cost, \$3 million.

The following data relate to Virtue Company's defined benefit pension plan during 2007.

| | \$ in millions |
|--|----------------|
| Plan assets at fair value, January 1 | \$400 |
| Expected return on plan assets | 50 |
| Actual return on plan assets | 48 |
| Contributions to the pension fund (and all year) | 100 |
| Amortization of net loss | 10 |
| Pension benefits paid (end of year) | 15 |
| Pension expense | 92 |

Required:

Determine the amount of pension plan assets at fair value on December 31, 2007.

Pension data for Mullington Enterprises include the following.

| | \$ in millions |
|---|----------------|
| Discount rate, 10% | |
| Projected benefit obligation, January 1, 2007 | \$160 |
| Projected benefit obligation, December 31, 2007 | 165 |
| Accumulated benefit obligation, January 1, 2007 | 300 |
| Accumulated benefit obligation, December 31, 2007 | 415 |
| Cash contributions to pension fund, December 31, 2007 | 150 |
| Benefit payments to retirees, December 31, 2007 | 54 |

Required:

Assuming no change in actuarial liability (and no settlement), determine the service cost component of pension expense for 2007.

E 17-7

Changes in plan assets,
determine cash
contributions

• 104

Pension data for Fishy Transportation, Inc. include the following:

(\$ in millions)

| | |
|--|-------|
| Discount rate, 7% | |
| Expected return on plan assets, 10% | |
| Actual return on plan assets, 1% | |
| Projected benefit obligation, January 1, 2007 | \$790 |
| Plan assets (fair market value), January 1, 2007 | 700 |
| Plan assets (fair market value), December 31, 2007 | 750 |
| Benefit payments to retirees, December 31, 2007 | 66 |

Required

Assuming cash contributions were made at the end of the year, what was the amount of those contributions in 2007?

E 17-8

Components of
pension expense

• 104

Pension data for Spurring Properties include the following:

(\$ in 000s)

| | |
|--|-------|
| Service cost, 2007 | \$ 12 |
| Prior service credit amortization, January 1, 2007 | 850 |
| Plan assets (fair market value), January 1, 2007 | 900 |
| Net prior service cost (2007 amortization, \$1) | 90 |
| Net loss-pensions (2007 amortization, \$1) | 0 |
| Discount rate, 6% | |
| Expected return on plan assets, 10% | |
| Actual return on plan assets, 1% | |

Required

Determine pension expense for 2007.

E 17-9

Determine pension
expense

• 106-107

Abbott and Abbott has a noncontributory, defined benefit pension plan. At December 31, 2007, Abbott and Abbott reached the following information:

| Projected Benefit Obligation | (\$ in millions) |
|------------------------------|------------------|
| Balance, January 1 | \$120 |
| Service cost | 20 |
| Interest cost | 12 |
| Benefits paid | (9) |
| Balance, December 31 | \$143 |
| Plan Assets | |
| Balance, January 1 | \$80 |
| Actual return on plan assets | 9 |
| Cash contributions, 2007 | 20 |
| Benefits paid | (9) |
| Balance, December 31 | \$100 |

The expected long-term rate of return on plan assets was 10%. There was no prior service cost and negligible net loss-pensions on January 1, 2007.

Required

1. Determine Abbott and Abbott's pension expense for 2007.
2. Prepare the journal entries to record Abbott and Abbott's pension expense and funding for 2007.

E 17-10

Components of
pension expense,
journal entry

• 106-107

Pension data for Barry Piquarini Services, Inc. include the following:

(\$ in 000s)

| | |
|---|--------|
| Discount rate, 7% | |
| Expected return on plan assets, 10% | |
| Actual return on plan assets, 9% | |
| Service cost, 2007 | \$ 310 |
| January 1, 2007: | |
| Projected benefit obligation | 2,300 |
| Accumulated benefit obligation | 2,000 |
| Plan assets (fair market value) | 2,400 |
| Prior service cost (2007 amortization, \$25) | 325 |
| Net gain-pensions (2007 amortization, \$4) | 330 |
| December 31, 2007: | |
| Cash contributions to pension fund, December 31, 2007 | 240 |
| Benefit payments to retirees, December 31, 2007 | 270 |

⁷ For more information on the various types of funding, see the www.assessingyourbusiness.com website.

1. 29% of workers receive a final year's salary

Stanley Mills was hired by Clark at the beginning of 1988. Mills is expected to retire at the end of 2007 after 19 years of service. The company's pension plan provides that Mills will receive 1.5% of his salary for each year of service. The company's actuary projects Mills's salary to be \$270,000 at retirement. The company's fiscal year ends on December 31.

2. Estimate the amount of Stanley Miller's annual retirement payments for the 3 retirement years earned as of the end of 1980.

2. Suppose Clark's pension plan provides a lump-sum payment at retirement in lieu of annuity payments. Determine the lump-sum equivalent at the present value at of the retirement date of annuity payments during the retirement period.

3. What is the company's projected taxable income as the end of 2007 with respect to Sully Mid?

4. What is the company's accumulated benefit obligation at the end of 2007 with respect to Stanley Mills?

5. If we assume no actuarial change in the interim, what is the company's projected benefit obligation at the end of 2008 with respect to Stanley Mills?

6. What fraction of the 2000 population in the 1990s is illiterate in 2000 years (the service and comparison of previous years) are to accurate (internal) the internal and comparison of previous years.

Hack's Cole Company has a defined benefit pension plan. Three alternative possible losses for pension-related data as January 1, 2007 are shown below.

| | (\$ in '000s) | | |
|---|---------------|----------|---------|
| | Case 1 | Case 2 | Case 3 |
| Net loss (gain), Jan. 1 | \$ 320 | \$ (300) | \$ 360 |
| 2007 loss (gain) on plan assets | (11) | (8) | 2 |
| 2007 loss (gain) on PBO | (23) | 16 | (245) |
| An unrecognized net gain adjustment on projected benefit obligation, Jan. 1 | (2,950) | (2,500) | (1,450) |
| Fair value of plan assets, Jan. 1 | 2,960 | 2,700 | 1,550 |
| Average remaining service period of active employees (years) | 1.8 | 1.5 | 1.0 |

1. For each independent case, calculate fully amortization of the net loss or gain that should be included as a component of income taxes: $S = 100$.

2. For each independent class, determine the mean rate of return as of January 1, 2000.

A partially completed pension spreadsheet showing the relevant data about the elements that comprise the defined benefit pension plan of Universal Products is given below. The actuary's discount rate is 5%. At the end of 2015, the pension formula was simplified, creating a prior service cost of \$1,200,000. The expected rate of return on assets was 5%, and the average remaining service life of the active employee group is 20 years in the current year as well as the future two years.

Copy the incomplete spreadsheets and GV in the chapter appendix.

| | Internal Records | | Forsell Records | | | |
|---------------------------|------------------|--------------------|-------------------|-----------------|------|---------------------------|
| | | Prior Service Cost | Net Loss-Pensions | Pension Expense | Cash | Prepaid (Liability) Asset |
| Balance, Jan. 2007 | (800) | 800 | 80 | | | (280) |
| Service cost | | | | 84 | | |
| Interest cost, 5% | 40 | | | | | |
| Expected return on assets | | | | (48) | | |
| Adjust for: | | | | | | |
| Loss on assets | | | Δ | | | |
| Amortization | | | | | | |
| Prior service cost | | | | | | |
| Amortization | | | | | | |
| Paid cash | | | | | | |

| | | |
|----------------------|-------------|------------|
| Gain on PBO | | 17 |
| Prior service cost | 0 | |
| Cash funding | | (58) |
| Retiree benefits | | |
| Balance, end of 2007 | <u>\$62</u> | <u>108</u> |

E 17 14
Effect of pension expense components on balance sheet accounts

• LO7 LOE

Worrick & Sons calculated pension expense for its underfunded pension plan as follows:

| | \$ in 100,000 |
|---|---------------|
| Service cost | \$224 |
| Interest cost | 150 |
| Expected return on plan assets (\$100 actual, loss \$10 gain) | (90) |
| Amortization of prior service cost | 0 |
| Amortization of net loss-pensions | 2 |
| Pension expense | <u>\$296</u> |

Required:

Which elements of Worrick's balance sheet are affected by the components of pension expense? What are the specific changes in these accounts?

E 17 16
Determine and record pension expense, funding, and gains and losses

• LO6 LO7

Actuary and trustee reports indicate the following changes in the PBO and plan assets of Douglas-Horne, Inc.: (in millions)

| | |
|---|--------------|
| Prior service cost at Jan. 1, 2007, from plan amendment at the beginning of 2006 (amortization: \$4 million net year) | \$28 million |
| Net loss-pensions at Jan. 1, 2007 (previous losses exceeded previous gains) | \$60 million |
| Average remaining service life of the active employee group | 10 years |
| Assumed discount rate | 7% |

(% in millions)

| | PBO | | Plan Assets |
|------------------------|--------------|---|--------------|
| Beginning of 2007 | \$400 | Beginning of 2007 | \$400 |
| Service cost | 80 | Return on plan assets, 8% / 0%-expected | 17 |
| Interest cost 7% | 42 | Cash contributions | 90 |
| Loss (gain) on PBO | (14) | Less: Retiree benefits | (38) |
| Less: Retiree benefits | (38) | | |
| End of 2007 | <u>\$560</u> | End of 2007 | <u>\$684</u> |

Required:

- Determine Douglas-Horne's pension expense for 2007 and prepare the appropriate journal entries to record the expense as well as the cash contribution to plan assets.
- Prepare the appropriate journal entry to record any 2007 gains and losses.

E 17 16
Concepts/terminology

• LOs through LOE

Listed below are several terms and phrases associated with pensions. List each item from List A to List B with the item from List B that is most appropriately associated with it.

List A

- Minimum expenditure levels established
- All funding provided by the employer
- Credit to accumulated OCI and debit to Pension liability
- Retirement benefits specified by formula
- Trade-off between insurance and investment
- Accumulative gains in excess of losses
- Current pay levels implicitly assumed
- Factor in the passage of time
- Not a financial measure of pension
- Risk borne by employee
- Increased by employer contributions
- Controlled by plan administrator
- Not in plan assets
- Excess over 10% of plan assets or PBO

List B

- Actual return at end expected
- Net gain pensions
- Asset benefit obligation
- Projected benefit obligation
- Choice between PBO and ABO
- Non-contributory pension plan
- Accumulated benefit obligation
- Plan assets
- Formula cost
- Delayed recognition on earnings
- Deferred contribution plan
- Delayed benefit plan
- Prior service cost
- Amortized net loss pensions

For a pension expense, funding, and other assets, determine whether the loss

106 17 05

Bogle Management has a noncontributory defined benefit pension plan. On December 31, 2007 (the end of Bogle's fiscal year), the following pension-related data were available:

| Projected Benefit Obligation | \$ millions |
|--|-------------|
| Balance, January 1, 2007 | \$400 |
| Service cost | 62 |
| Interest on obligation rate 7% | 24 |
| Gain due to changes in actuarial assumptions in 2007 | 01 |
| Pension benefits paid | 40 |
| Balance, December 31, 2007 | \$536 |
| Plan Assets | |
| Balance, January 1, 2007 | \$500 |
| Actual return on plan assets | 40 |
| (Expected return on plan assets, \$45) | |
| Cash contributions | 70 |
| Pension benefits paid | 40 |
| Balance, December 31, 2007 | \$570 |
| January 1, 2007, balances: | |
| Pension asset | \$20 |
| Prior service cost (amortization \$2 per year) | 48 |
| Net gain-pensions (any amortization over 15 years) | 60 |

Required:

1. Prepare the 2007 journal entry to record pension expense.
2. Prepare the 2007 journal entry to record the contribution to plan assets.
3. Prepare the journal entry to record any 2007 gains and losses.
4. Distribute the balances at December 31, 2007, to the pension asset, the act gains-pensions, and prior service cost and show how the balances changed during 2007. (REEL You might find T-accounts useful.)

Refer to the data on (b) in E 17-7.

Required:

Prepare a pension spreadsheet to show the relationship among the PBO, plan assets, prior service cost, the net plan-pensions, pension expense, and the pension asset.

The following questions dealing with pensions are adapted from questions that appeared in previous CPA examinations. Determine the response that best completes the sentence or answers the question.

1. The following information pertains to Lee Corp.'s defined benefit pension plan for 2007:

| | |
|--|-----------|
| Service cost | \$160,000 |
| Actual and expected return on plan assets | 35,000 |
| Unexpected loss on plan assets (result of a 2007 dividend of a subsidiary) | 40,000 |
| Amortization of prior service cost | 5,000 |
| Annual interest on pension obligation | 50,000 |

What amount should Lee report as pension expense in its 2007 income statement?

- a. \$250,000
- b. \$170,000
- c. \$175,000
- d. \$260,000

2. Interest cost included in the net pension cost recognized by an employer sponsoring a defined benefit pension plan represents the:

- a. Amortization of the discount on unrecognized prior service costs.
- b. Increase in the fair value of plan assets due to the passage of time.
- c. Increase in the projected benefit obligation due to the passage of time.
- d. Shortage between the expected and actual returns on plan assets.

Indicate with the appropriate letter the nature of each adjustment described below.

Type of Adjustment

- A. Change in principle
- B. Change in estimate
- C. Correction of an error
- D. Neither a accounting change nor an error

Pension spreadsheet

106

Multiple choice CPA exam

106

Classifying accounting changes and errors

106

1. Change in actuarial assumptions on defined benefit pension plan
2. Determination that the projected benefit obligation under a pension plan exceeded the fair value of plan assets at the end of the previous year by \$17,000. The only pension-related amount on the balance sheet was pension liability of \$30,000.
3. Pension plan assets for a defined benefit pension plan achieving a rate of return in excess of the amount anticipated.
4. Instituting a pension plan for the first time and adopting Statement of Financial Accounting Standards No. 158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans."

E 7.2
Postretirement
benefits; determine
APBO, EPBO

• 10 min

Classical Electronics has an individual retiree health care plan. Each of the company's three employees has been with the firm since its inception at the beginning of 2006. As of the end of 2007, the company expects the total net cost of providing health care benefits to employees during their retirement years to have a present value of \$75,000. All three employees will begin the fully eligible benefits after 25 years of service. They are all men, expected to retire in 2031 or later. The interest rate is 6%.

Required

1. What is the expected postretirement benefit obligation at the end of 2007?
2. What is the accumulated postretirement benefit obligation at the end of 2007?
3. What is the expected postretirement benefit obligation at the end of 2008?
4. What is the accumulated postretirement benefit obligation at the end of 2009?

E 7.22
Postretirement
benefits; determine
APBO, service cost,
interest cost; prepare
journal entry

• 10 min

The following data are available in relating to Household Appliance Company's retiree health care plan in 2007:

| | |
|---|----------|
| Number of employees covered | 2 |
| Years employed as of January 1, 2007 | 35 each |
| Attribution period | 25 years |
| Expected postretirement benefit obligation, Jan. 1 | \$50,000 |
| Expected postretirement benefit obligation, Dec. 31 | \$53,300 |
| Interest rate | 6% |
| Funding | none |

Required

1. What is the accumulated postretirement benefit obligation at the beginning of 2007?
2. What is interest cost to be included in 2007 postretirement benefit expense?
3. What is service cost to be included in 2007 postretirement benefit expense?
4. Prepare the journal entry to record the postretirement benefit expense for 2007.

E 7.23
Postretirement
benefits; determine
EPBO; attribution
period

• 10 min

Lomb Management Services has an unfunded, postretirement benefit plan. On December 31, 2007, the only data were available concerning changes to the plan's accumulated postretirement benefit obligation with respect to one of Lomb's employees.

| | |
|---|----------|
| APBO at the beginning of 2007 | \$16,304 |
| Interest cost (\$16,304 × 10%) | 1,630 |
| Service cost (\$44,000 × %) | 2,000 |
| Expected postretirement benefit obligation at the end of 2007 | |

APBO at the end of 2007

\$29,000

Required

1. Over how many years is the expected postretirement benefit obligation being expensed (attribution period)?
2. What is the expected postretirement benefit obligation at the end of 2007?
3. When was the employee hired by Lomb?
4. What is the expected postretirement benefit obligation at the beginning of 2007?

E 7.24
Postretirement
benefits; components
of postretirement
benefit expense

• 10 min

Now participating in the postretirement health care costs plan of Sterling Properties include the following data (in 000s):

| | |
|---|-------|
| Service cost | \$128 |
| Accumulated postretirement benefit obligation, January 1 | 700 |
| Premiums (fair market value), January 1 | 50 |
| Prior service cost | none |
| Net gain-postretirement benefit plan (2007 amortization, \$1) | 91 |
| Retiree benefits paid (end of year) | 80 |
| Contribution to health care benefit fund (end of year) | 185 |
| Discount rate, 7% | |
| Return on plan assets (actual and expected), 10% | |

Required

1. Determine the postretirement benefit expense for 2007.

2. Prepare the appropriate journal entries to record the postretirement benefit expense and funding for 2007.

Case: Michael Company has a postretirement health care benefit plan. On January 1, 2007, the following plan-related data were available:

| | \$ in 000s |
|---|-------------------------------------|
| Net plan assets (postretirement benefit plan) | \$ 338 |
| Accumulated postretirement benefit obligation | 2,600 |
| Fair value of plan assets | 500 |
| Average remaining service period of employees | 14 years (same as previous 10 yrs.) |
| Average remaining service period of liability | 12 years (same as previous 10 yrs.) |

The rate of return on plan assets during 2007 was 10%, although it was expected to be 9%. The actuary re-vised assumptions regarding the APBO at the end of the year, resulting in a \$39,000 increase in the estimate of this obligation.

Required

1. Calculate any amortization of the net loss that should be included as a component of postretirement benefit expense for 2007.

2. Assume the postretirement benefit expense for 2007, not including the amortization of the net loss requirement, is \$272,000. What is the expense for the year?
3. Determine the net loss or gain as of December 31, 2007.

Case: Park Corporation provides postretirement health care benefits to employees who provide at least 10 years of service and reach age 62 while in service. On January 1, 2007, the following plan-related data were available:

| | \$ in millions |
|---|-------------------------------------|
| Accumulated postretirement benefit obligation | \$130 |
| Fair value of plan assets | None |
| Average remaining service period of employees | 25 years (same as previous 20 yrs.) |
| Average remaining service period of liability | 20 years (same as previous 20 yrs.) |

On January 1, 2007, Curly-Pack amended the plan to provide supplemental benefits in addition to previously provided medical benefits. The actuary determines that the cost of making the amendments regarding in-creases the APBO by \$20 million. Management chooses to amortize the prior service cost on a straight-line basis. The service cost for 2007 is \$14 million. The interest rate is 9%.

Required

1. Calculate the postretirement benefit expense for 2007.

2. Prepare the journal entry to record the expense.

Case: Derrington Inc. provides postretirement health care benefits to employees. On January 1, 2007, the following plan-related data were available:

| | \$ in 100s |
|---|-------------------------------------|
| Prior service cost, originated in 2005 | \$ 50 |
| Accumulated postretirement benefit obligation | 530 |
| Fair value of plan assets | None |
| Average remaining service period of employees | 20 years (same as previous 20 yrs.) |
| Average remaining service period of liability | 15 years (same as previous 20 yrs.) |

On January 1, 2007, Derrington amends the plan to increase its special health care costs. The amendments establish an annual maximum of \$3,000 for medical benefits that the plan will provide. The actuary deter-mines that the effect of this amendment is to decrease the APBO by \$80,000. Management amortizes prior service cost on a straight-line basis. The interest rate is 9%. The service cost for 2007 is \$14,000.

Required

1. Calculate the prior service cost amortization for 2007.

2. Calculate the postretirement benefit expense for 2007.

The following question dealing with postretirement benefit plans appeared on a previous CPA examination. Enter the letter corresponding to the response which best completes the question.

An employer's obligation for postretirement health benefits that are expected to be provided to be for an employee must be fully accrued by the date the

- a. Employee is fully eligible for benefits.
b. Employee retires.

E 17-24

Multiple choice: CMA exam pensions

LO 2, 3a, 3b

- Benefits are utilized
- Benefits are paid

The following questions dealing with pensions are adopted Enim questions that previously appeared on the Certified Management Accountant (CMA), examination. The CMA designation sponsored by the Institute of Management Accountants (www.imac.org) provides members with an objective measure of expertise and competence in the field of management accounting. Determine the response that best completes the statement or answers the question.

- According to SFAS 87, *Employer's Accounting for Pension Plans*, the projected benefit obligation (PBO) is best described as the:
 - Present value of benefits accrued to date based on future salary levels
 - Present value of benefits accrued to date based on current salary levels
 - Present value of benefits accrued to date based on the actuarial assumption of the rate of increase in the cost of living
 - Amount of the (deficiency, excess) reflects the difference between actual and expected return on plan assets
- On November 30, the Board of Directors of Baldwin Corporation amends its pension plan regarding benefits to its employees. The information below is provided as November 30:

| | |
|---|-----------|
| Accumulated benefit obligation (ABO) | \$425,000 |
| Projected benefit obligation (PBO) | 900,000 |
| Plan assets (fair value) | 300,000 |
| Market-related asset value | 300,000 |
| Prior service cost | 100,000 |
| Average remaining service life of employees | 10 years |
| Useful life of pension goodwill | 20 years |

Using the straight-line method of amortization, the amount of prior service cost charged to expense during the year ended November 30 is:

- \$4,500
- \$9,000
- \$90,000
- \$45,000

E 17-25

Prior service cost:
present value method
straight-line method
Based on Appendix

Frazier Refrigeration amended its defined benefit pension plan on December 31, 2007, to recognize merit benefits earned with each service year. The consulting actuary estimates the prior service cost arising by adopting the amendment retrospective to prior years to be \$100,000. Frazier's 100 present employees are expected to retire at the rate of approximately 10 each year at the end of each of the next 10 years.

- Required:
- Using the service method, calculate the amount of prior service cost to be amortized to pension expense in each of the next 10 years.
 - Using the straight-line method, calculate the amount of prior service cost to be amortized to pension expense in each of the next 10 years.

PROBLEMS

A solutions manual and problem set is available on the text website www.mhhe.com/college/mgmt.

Notes: Problems 1–3 are variations of the same situation, designed to focus on different elements of the pension plan.

P 17-1

Accruals:
present value concepts

LO 2, 3a

Sachs Brands' defined benefit pension plan specifies annual retirement benefits equal to 1.6% of an employee's final year's salary, payable at the end of each year. Angela Devonport was hired by Sachs at the beginning of 2003 and is expected to retire at the end of 2027 after 25 years' service. Her retirement is expected to span 14 years. Devonport's salary at the end of 2007 and the company's discount rate are \$240,000 and 7%, respectively.

Required:

- Draw a time line that depicts Devonport's expected service period, retirement period, and measurement date for the pension obligation.
- Calculate by the accumulated benefits approach the amount of Devonport's annual retirement payment at the end of 2027.
- What is the company's accumulated benefit obligation at the end of 2007 with respect to Devonport?

2011 calculations
present value concepts

• 11-1

4. If no estimates are changed in the meantime, what will be the accumulated benefit obligation at the end of 2011 (three years later) when Davenport's salary is \$48,000?

Sachs Brands defines benefit pension plan specifies annual retirement benefits equal to 1.5% of service years \times final year's salary, payable at the end of each year. Angela Davenport was hired by Sachs at the beginning of 1993 and is expected to retire at the end of 2027 after 35 years' service. Her retirement is expected to span 15 years. Davenport's salary is \$40,000 at the end of 2007 and the company's actuary projects her salary to be \$48,000 at retirement. The company's actuary projects the discount rate to be 7%.

Required:

1. Draw a time line that depicts Davenport's expected service period, retirement period, and a 2007 measurement date for the pension obligation.
2. Estimate by the projected benefits approach the amount of Davenport's annual retirement payments attributable to 2007 service.
3. What is the company's projected benefit obligation at the end of 2007 with respect to Davenport?
4. If no estimates are changed in the meantime, what will be the company's projected benefit obligation at the end of 2010 (three years later) with respect to Davenport?

2011 3
service cost, interest,
and PBO calculations,
present value concepts

• 11-2

Sachs Brands defines benefit pension plan specifies annual retirement benefits equal to 1.5% of service years \times final year's salary, payable at the end of each year. Angela Davenport was hired by Sachs at the beginning of 1993 and is expected to retire at the end of 2027 after 35 years' service. Her retirement is expected to span 15 years. Davenport's salary is \$40,000 at the end of 2007 and the company's actuary projects her salary to be \$48,000 at retirement. The company's actuary projects the discount rate to be 7%.

Required:

1. What is the company's projected benefit obligation at the beginning of 2007 after 14 years' service with respect to Davenport?
2. Estimate by the projected benefits approach the portion of Davenport's annual retirement payments attributable to 2007 service.
3. What is the company's service cost for 2007 with respect to Davenport?
4. What is the company's interest cost for 2007 with respect to Davenport?
5. Combine your answers to requirements 1, 3, and 4 to determine the company's projected benefit obligation at the end of 2007 after 15 years' service with respect to Davenport.

2011 4
prior service cost
pensions, pension
expense, present value
concepts

• 11-3

Sachs Brands defines benefit pension plan specifies annual retirement benefits equal to 1.5% of service years \times final year's salary, payable at the end of each year. Angela Davenport was hired by Sachs at the beginning of 1993 and is expected to retire at the end of 2027 after 35 years' service. Her retirement is expected to span 15 years. Davenport's salary is \$40,000 at the end of 2007 and the company's actuary projects her salary to be \$48,000 at retirement. The company's actuary projects the discount rate to be 7%.

At the beginning of 2008, the pension formula was amended to

$$1.5\% \times \text{service years} \times \text{final year's salary}$$

The amendment was made retrospective to apply the increased benefits to prior service years.

Required:

1. What is the company's prior service cost at the beginning of 2008 with respect to Davenport after the amendment described above?
2. Since the amendment occurred at the beginning of 2008, amortization of the prior service cost begins in 2008. What is the prior service cost amortization that would be included in pension expense?
3. What is the service cost for 2008 with respect to Davenport?
4. What is the interest cost for 2008 with respect to Davenport?
5. Calculate pension expense for 2008 with respect to Davenport, assuming plan assets attributable to her of \$150,000 and a rate of return (actual and expected) of 6%.

2011 5
gain on PBO, present
value concepts

• 11-4

Sachs Brands defines benefit pension plan specifies annual retirement benefits equal to 1.5% of service years \times final year's salary, payable at the end of each year. Angela Davenport was hired by Sachs at the beginning of 1993 and is expected to retire at the end of 2027 after 35 years' service. Her retirement is expected to span 15 years. Davenport's salary is \$40,000 at the end of 2007 and the company's actuary projects her salary to be \$48,000 at retirement. The company's actuary projects the discount rate to be 7%.

At the beginning of 2008, changing economic conditions caused the actuary to reassess the applicable discount rate. It was decided that 8% is the appropriate rate.

Required:

1. Calculate the effect of the change in the discount rate on the PBO at the beginning of 2008 with respect to Davenport.

P 17-6

Determine the PBO, plan assets, pension expense, two years.

- LO3, LO4, LO6

P 17-7

Determining the amortization of net gain

- LO6

Stanley Mfg. Industries adopted a defined benefit pension plan on April 1, 2007. The provisions of the plan were not made retroactive to prior years. A local bank, engaged as trustee for the plan assets, reports that the plan assets earn a 7% rate of return. A consulting firm, engaged as actuary, recommends 6% as the appropriate discount rate. The service cost is \$150,000 for 2007 and \$200,000 for 2008. Year-end funding is \$ 60,000 for 2007 and \$170,000 for 2008. No assumptions or estimates were revised during 2007.

Required:

Calculate each of the following amounts as of both December 31, 2007 and December 31, 2008:

1. Projected benefit obligation
2. Plan assets
3. Pension expense
4. Pension assets/liabilities

Hinting: We assume a company that sells (but does not own) all of its equity in 2007. The following pension-related data were available:

| | (\$ in 000s) |
|---|--------------|
| Net gain-pensions | \$ 170 |
| Accumulated benefit obligation | 170 |
| Projected benefit obligation | 1,000 |
| Fair value of plan assets | 1,100 |
| Average remaining service period of active employees (expected to remain constant for the next several years) | 15 years |

The rate of return on plan assets during 2007 was 9%, although it was expected to be 10%. The company revised assumptions regarding the PBO at the end of the year, resulting in a \$23,000 decrease in the fair value of the obligation.

Required:

Calculate any amortization of the net gain that should be included as a component of net pension expense for 2007.

3. Assume the net pension expense for 2007 (not including the amortization of the net gain component) is \$275,000. What is pension expense for the year?
3. Determine the net loss or gain as of January 1, 2008.

P 17-8

Pension spreadsheet records pension expense and funding, new gains and losses.

- LO7, LO8

A partially completed pension spreadsheet showing the relationships among the elements that comprise Carney, Inc.'s defined benefit pension plan follows. Six years earlier, Carney revised its pension formula and recalculated benefits earned by employees. Employees were using the more generous formula. The increase in the cost created by the recalculation, being amortized at the rate of \$5 million per year. As the result, the pension amount was increased again, adding an additional prior service cost of \$40 million. The expected rate of return on assets and the actual discount rate were 7% and the average remaining service period of the entire employee group is 12 years.

| | Informal Records | | Formal Records | | | | |
|------------------------------------|------------------|-------------|--------------------|-------------------|-----------------|------|-------------------------|
| | PBO | Plan Assets | Prior Service Cost | Net Loss-Pensions | Pension Expense | Cash | Prepaid Liability Asset |
| Balance Jan 1, 2007 | 10,000 | 550 | 20 | 50 | | | 50 |
| Service cost | | | | | 74 | | |
| Interest cost | | | | | 7 | | |
| Expected return on assets | | | | | 7 | | |
| Adjust for: | | | | | | | |
| Loss on assets | | 7 | | 7 | | | |
| Amortization of prior service cost | | | 7 | | 7 | | |
| Net loss | | | | 7 | 7 | | |
| Loss on PBO | 7 | | | 7 | | | 17 |
| Prior service cost | 7 | | | | | | |
| Cash funding | | 7 | | | | 7 | 44 |
| New benefits | 7 | 7 | | | | | |
| Balance Dec 31, 2007 | 7 | 725 | 7 | 7 | 4 | | |

Required:

1. Copy the incomplete spreadsheet and fill in the missing amounts.
2. Prepare the 2007 journal entry to record pension expense.

10-70

Determine pension expense; PBO; plan assets; pension asset liability; journal entries

10-71 through 10-73

10-74

Determine pension expense; journal entries; two years

10-75 through 10-78

10-79

Determine the PBO, plan assets, pension expense, prior service cost

10-80 through 10-82

3. Prepare the 2007 journal entry to record the path contributions to plan assets.
4. Prepare the journal entry to record any 2007 gains and losses and new prior service cost on 2007.

10-83 Adairbergwald, Inc. reported the following balances in its financial statements and disclosure notes at the end of 2006:

| | |
|------------------------------|------------|
| Plan assets | \$ 400,000 |
| Projected benefit obligation | 320,000 |

L.S.M.'s actuary determined that 2007 service cost is \$40,000. Both the expected and actual rate of return on plan assets are 9%. The interest discount rate is 4%. L.S.M. contributed \$125,000 in the pension fund at the end of 2007 and retirees were paid \$44,000 from plan assets.

Required

Determine the following amounts at the end of 2007:

1. Pension expense
2. Projected benefit obligation
3. Plan assets
4. Pension asset/liability
5. Prepare journal entries to record the pension expense and funding of plan assets to verify the changes in the pension asset/liability.

The Kotlar Company has a defined benefit pension plan. Pension information substantiating the fiscal years 2007 and 2008 are presented below (\$ in millions).

Information Provided by Pension Plan Actuary

- a. Projected benefit obligation as of December 31, 2006 = \$ 1,000
- b. Prior service cost from plan amendment on January 2, 2007 = \$400 (straight-line amortization for 10-year period remaining service period)
- c. Service cost for 2007 = \$520
- d. Service cost for 2008 = \$570
- e. Discount rate used by actuary on projected benefit obligations for 2007 and 2008 = 10%
- f. Payments to retirees in 2007 = \$400
- g. Payments to retirees in 2008 = \$440
- h. Actuary's actuarial assumptions or estimates

Information Provided by Pension Fund Trustee

- a. Plan asset balance at fair value on January 1, 2007 = \$7,000
- b. 2007 contributions = \$300
- c. 2008 contributions = \$340
- d. Expected long-term rate of return on plan assets = 12%
- e. 2007 actual return on plan assets = \$100
- f. 2008 actual return on plan assets = \$200
- g. Net gain—payments on January 1, 2007 = \$230
- h. Net gains and losses are amortized for 10 years for 2007 and 2008.

Required

1. Calculate pension expense for 2007 and 2008.
2. Prepare the journal entries for 2007 and 2008 to record pension expense.
3. Prepare the journal entries for 2007 and 2008 to record the cash contributions to plan assets.
4. Prepare the journal entries for 2007 and 2008 to record any gains and losses and new prior service cost.

Lewis Industries adopted a defined benefit pension plan on January 1, 2007. By making the provisions of the plan retroactive to prior years, Lewis incurred a prior service cost of \$2 million. The prior service cost was funded immediately by a \$2 million cash payment to the fund trustee on January 2, 2007. However, the cost is to be amortized (expensed) over 10 years. The service cost—\$250,000 for 2007—is fully funded at the end of each year. Both the actuary's discount rate and the expected rate of return on plan assets were 9%. The actual rate of return on plan assets was 19%. At December 31, the trustee paid \$15,000 to all eligible yet unreleased during 2007.

Required

Determine each of the following amounts as of December 31, 2007: the fiscal year-end for Lewis.

1. Projected benefit obligation
2. Plan assets
3. Pension expense

P 17.13
Relationships among
pension elements

• LO8 through LO8

The funded status of Hixon Packaging, Inc.'s defined benefit pension plan and the balances on prior service cost and the net gain-losses, are given below.

(\$ in 000s)

| | 2007
Beginning Balance | 2007
Ending Balance |
|----------------------------|---------------------------|------------------------|
| Pension benefit obligation | \$2,100 | \$2,500 |
| Plan assets | 2,400 | 2,590 |
| Funded status | 100 | 90 |
| Prior service cost | 325 | 300 |
| Net gain-losses | 330 | 300 |

Retirees were paid \$270,000 and the company's contribution to the pension fund was \$245,000 at the end of 2007. The expected rate of return on plan assets was 10%, and the actuary's discount rate is 7%. There were no changes in actuarial estimates and assumptions regarding the PBO.

Required

1 Determine the journalizing entries for 2007.

2 Actual return on plan assets

3 Loss on plan and prior assets

4 Net loss

5 Pension expense

6 Average remaining service life of active employees (used in determine amortization of the net gain)

The following pension-related data pertain to Hixon Packaging's noncontributory, defined benefit pension plan at 2007:

(\$ in 000s)

| | Jan. 1 | Dec. 31 |
|--|---------|---------|
| Projected benefit obligation | \$4,100 | \$4,190 |
| Accumulated benefit obligation | 3,715 | 3,950 |
| Plan assets (fair value) | 4,530 | 4,975 |
| Interest discount rate 7% | | |
| Expected return on plan assets, 10% | | |
| Prior service cost | | |
| Hixon Dec. 31 2006, amendment | 850 | |
| Net loss-pensions | 472 | |
| Average remaining service life: 10 years | | |
| Gain due to changes in actuarial assumptions | | 44 |
| Contributions to pension fund (end of year) | | 340 |
| Pension benefits paid (end of year) | | 395 |

Required

Prepare a pension spreadsheet that shows the relationships among the various pension balances, shows the changes to those balances, and computes pension expense for 2007.

Actuary and trustee reports indicate the following changes in the PBO and plan assets of Lakeside Co. during 2007:

| | |
|--|--------------|
| Prior service cost at Jan. 1, 2007 (from plan amendment at the beginning of 2005, amortization \$4 million a year) | \$32 million |
| Net loss-pensions at Jan. 1, 2007 (previous to 2006 ended previous years) | \$46 million |
| Average remaining service life of the active employee group | 10 years |
| Actuary's discount rate | 8% |

(\$ in millions)

| | PBO | | Plan Assets |
|------------------------|-------|---|-------------|
| Beginning of 2007 | \$300 | Beginning of 2007 | \$200 |
| Service cost | 18 | Return on plan assets, 7 1/2% (8% expected) | 15 |
| Interest cost 8% | 24 | Cash contributions | 45 |
| Change in PBO | 27 | Less: Retiree benefits | (20) |
| Less: Retiree benefits | (20) | | |
| End of 2007 | \$350 | End of 2007 | \$240 |

Required

Determine Lakeside's pension expense for 2007 and prepare the appropriate journal entries showing the expense as well as the corresponding plan assets.

P 17.18
Comprehensive
pension elements
spreadsheet

• 78

P 17.14
Comprehensive
Preparing a pension
plan pension
spreadsheet,
determine changes in
balances, two years

• LO3 through LO8

2. Determine the new gains and/or losses in 2007 and prepare the appropriate journal entry to record them.
3. Prepare a pension spreadsheet to show you in determining end of 2007 balances in the PBO, plan assets, prior service cost, the net loss—pensions, and the pension liability.
4. Assume the following activity and related reports indicating changes in the PBO and plan assets of Lakeland Cable during 2008:

| Activity | PBO | Plan Assets |
|------------------------|-------|-------------|
| Beginning of 2008 | \$451 | \$290 |
| Service costs | 24 | |
| Interest cost at 8% | 36 | |
| Contributions to PBO | 5 | 30 |
| Less: Retiree benefits | 6 | 161 |
| End of 2008 | \$495 | \$290 |

Determine Lakeland's pension expense for 2008 and prepare the appropriate journal entries to record the expense and the cash funding of plan assets.

5. Determine the new gains and/or losses in 2008 and prepare the appropriate journal entry to record them.
6. Using T-accounts, determine the balances as December 31, 2008, in the pension liability, the net loss—pensions, and prior service cost.
7. Confirm the balances determined in Requirement 6 by preparing a pension spreadsheet.

To focus on the core issues, we ignore the derivative tax effects of the pension amounts we determine in the chapter. Depended on below are the journal entries from the chapter that General Communications used to record its pension expense and funding in 2007 and the new gain and loss that occurred that year.

| To Record Pension Expense | 45 | 45 |
|--|----|----|
| Pension expense—total | | 45 |
| Pension liability (\$44 + 24 + 27) | | 38 |
| Prior service cost (2007 amortization) | | 4 |
| Net loss—pensions (2007 amortization) | | 3 |
| To Record Funding | | |
| Pension liability | 38 | |
| Cash (contribution to plan assets) | | 38 |
| To Record Gains and Losses as Other Comprehensive Income (OCI) | | |
| Loss—OCI—From change in assumption | 23 | |
| Gain—OCI—From actual return exceeding expected return | | 3 |
| Pension liability (to balance) | | 20 |

Required

1. Record these journal entries to include the income tax effects of the events being recorded. Assume that Lakeland's tax rate is 40%. **Hint:** Costs are incurred and recognized for financial reporting purposes now, but the tax impact comes much later—when these amounts are deducted for tax purposes as future payments for retiree benefits accrue to the extent. As a result, the tax effects are deferred, creating the need to record deferred tax assets and deferred tax liabilities. So, you may want to refer back to Chapter 16 to refresh your memory on these concepts.

Prepare a statement of comprehensive income for 2007 assuming Lakeland's only other sources of comprehensive income were net income of \$300 million and a \$20 million net unrealized holding gain in investment assets in firm assets on hand.

2. Gateway-Fox Corporation's employees are eligible for postretirement health care benefits after both being employed at the end of the year in which age 60 is attained and having worked 20 years. Jason Snyder was hired at the beginning of 1985 by Gateway-Fox at age 34 (he turned 34 during 1985 and is expected to retire at the end of 2012, age 62). His retirement is expected to last five years (unrealistically short to simplify calculations). The company's actuary has estimated the net cost of retiree benefits in each retirement year as shown below. The discount rate is 6%. The plan is not pretreated.

| Year | Expected Age | Net Cost |
|------|--------------|----------|
| 2013 | 63 | \$4,000 |
| 2014 | 64 | 4,400 |
| 2015 | 65 | 2,300 |
| 2016 | 66 | 2,500 |
| 2017 | 67 | 2,800 |

Integrating Problem—
Deferred tax effects of
pension entries
integrate concepts
learned in Chapter 16

8-17

Problem 8-18
Deferred tax
effects, EPBO
credit and APBO
for 2013
components of
costs—retiree benefit
expenses, present value
credits

8-19-210

1. Draw a time line that depicts Snyder's contribution period for retiree benefits and expected retirement period.
2. Calculate the present value of the net benefits as of the expected retirement date.
3. With respect to Snyder, what is the company's expected postretirement benefit obligation at the end of 2007?
4. With respect to Snyder, what is the company's accumulated postretirement benefit obligation at the end of 2007?
5. With respect to Snyder, what is the company's accumulated postretirement benefit obligation at the end of 2008?
6. What is the service cost to be included in 2008 postretirement benefit expense?
7. What is the interest cost to be included in 2008 postretirement benefit expense?
8. Show how the APBO changed during 2007 by reconciling the beginning and ending balances.

© 1997 through 2001

■ **LOSS THROUGH APT**

2-1314-HF1

The sponsoring fellow depends on the retired health care plan of Thompson Technologies.

| | 2007
Beginning
Balance | 2007
Ending
Balance |
|--|------------------------------|---------------------------|
| Autonomous pension benefit certificate investments | 5460 | 5460 |
| Plan assets | 0 | 5 |
| Funded status | 460 | 1410 |
| Prior service cost | 20 | 10 |
| Net gain—postretirement benefit plan | 50 | 140 |

References

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

מנהל מחלקת המחקר והפיתוח

² Existence of the best solution is not obvious.

• 10 31 64 03

"I really get one shot at this," you wonder aloud. Mrs. Montgomery, human resources manager at State University, explains that not only is a vacant position open, but she has several retirement plan options. "Yes, I'm afraid so," she concludes. "But you do have a week to decide."

[illegible]

"It's a good thing I studied pensions in my accounting program," you tell her. "Now let me show you how the state is currently valuing its pensions with new assumptions. And the interest rate they use in their calculations is 6%." And, for someone any age, you say they assume "I'll retire after 40 years and draw retirement pay for 30 years. I'll do some research and get back to you."

Required:

1. You were hired at the beginning of 2007 at a salary of \$50,000. If you choose the state's defined benefit plan and projections hold true, what will be your annual retirement pay? What is the present value of your retirement annuity as of the anticipated retirement date (end of 2046)?
2. Suppose instead that you choose the defined contribution plan. Assuming that the rate of increase in salary is the same as the state assumes and that the rate of return on your retirement plan assets will be 6% compounded annually, what will be the future value of your plan assets as of the anticipated retirement date (end of 2046)? What will be your annual retirement pay (assuming withdrawing investments of remaining assets at age 65)?
3. Based on this numerical comparison, which plan would you choose? What other factors must you also consider in making the choice?

Hint: The calculations are greatly simplified using an electronic spreadsheet such as Excel. There are many ways to set up the spreadsheet. One relatively easy way is to set up the first few rows with the formulas as shown below, then use the "fill down" function in B2 in the next step. B6 next, and use the Insert > Name > Define Name function to name column A as "n." Note that multiplying each contribution by $(1.06)^n$ where n equals the remaining number of years to retirement calculates the future value of each contribution invested at 6% until retirement.

| | A | B | C | D |
|---|----|----------|----------|------------|
| n | | | | |
| 1 | 40 | 50000 | =B3*0.98 | =C3*0.06^n |
| 2 | 39 | =B4*0.98 | =B4*0.98 | =C4*0.06^n |

1. Create a file.

2. Enter concepts.

3. Try to explain.

And Zoeller is the newly hired assistant controller of Kopp Industries, a regional supplier of hardware products. The company sponsors a defined benefit pension plan that covers its 420 employees. On reviewing last year's financial statements, Zoeller was concerned about some items reported in the disclosure notes relating to the pension plan. Portions of the relevant note follow.

Note B: Pensions

The company has a defined benefit pension plan covering substantially all of its employees. Pension benefits are based on employed service years and the employee's compensation during the last two years of employment. The company contributes annually the maximum amount permitted by the federal tax code. Plan contributions provide for benefits expected to be earned in the future as well as those earned to date. The following reconciles the plan's funded status and amount recognized in the balance sheet at December 31, 2007 (in 000s):

Actual and Projected Value Benefit Obligations:

| | |
|---|---------|
| Accumulated benefit obligation | |
| Including vested benefits | \$1,000 |
| Projected benefit obligation | 1,800 |
| Plan assets at fair value | 1,575 |
| Projected benefit obligation in excess of plan assets | \$225 |

Kopp's comparative income statements reported net periodic pension expense of \$100,000 in 2007 and \$86,520 in 2006. Since employment has remained fairly constant in recent years, Zoeller expressed concern over the increase in the pension expense. He expressed his concerns to you, a "first-year accounting at Kopp." "I'm also interested in the differences in these liability measurements," he mentioned.

Required:

Write a memo to Zoeller for the pension.

1. Explain to Zoeller how the components of the net periodic pension expense can create the situation he sees. Briefly describe the components of pension expense.
2. Briefly explain how pension plans and assets are recognized in earnings.
3. Describe for him the differences and similarities between the accumulated benefit obligation and the projected benefit obligation.

In doing this, you will see how the relationship between the pension plan and the company's financial statements is established.

• 10.8

- a Explain how the 'Projected benefit obligation' is reported in the financial statements.

Barlow's company is a medium-sized provider of environmental engineering services. The corporation has a noncontributory defined benefit pension plan. Allen Barlow, a new employee and participant in the pension plan, should occupy one of the 2,000 full-time positions currently in the corporation. Information about the new employer's obligation under the plan is part of the pension footnote reads as follows:

Note B: Retirement Benefits

The following table provides information about the pension plan's assets and liabilities as of December 31, 2007 and 2006.

| | 2007 | 2006 |
|---|---------|---------|
| Projected benefit obligation at beginning of year | \$7,245 | \$6,710 |
| Service cost | 21 | 54 |
| Interest cost | 11 | 20 |
| Actuarial gain (loss) | 305 | 10 |
| Benefits paid | (994) | (84) |
| Net periodic benefit cost | \$6,587 | \$6,790 |

The following table provides information about the pension plan's assets as of December 31, 2007 and 2006.

| | 2007 | 2006 |
|----------------------------------|---------|---------|
| Plan assets at beginning of year | \$5,745 | \$5,010 |
| Contributions | 11 | 20 |
| Benefits paid | (994) | (84) |
| Net periodic benefit cost | \$5,762 | \$5,046 |

The following table provides information about the pension plan's liabilities as of December 31, 2007 and 2006.

| | 2007 | 2006 |
|---------------------------------------|---------|---------|
| Plan liabilities at beginning of year | \$1,500 | \$1,700 |
| Contributions | 11 | 20 |
| Benefits paid | (994) | (84) |
| Net periodic benefit cost | \$1,517 | \$1,636 |

In analyzing a company's financial reports, you will find the pension expense reported in the income statement. The expense is calculated as the difference between the projected benefit obligation and the plan assets. The expense is reported as a negative amount, indicating a credit to the income statement. The expense is calculated as the difference between the projected benefit obligation and the plan assets. The expense is reported as a negative amount, indicating a credit to the income statement.

some assumptions about interest rates, pay increases, and profits on invested assets. I wonder what effect what it would mean if they assumed other numbers.

Barney's wife took accounting courses in college and remembers most of what she learned about pension accounting. She attempts to clear up her husband's confusion.

Assume the role of Barney's wife. Answer the following questions for your husband.

1. Is Barney's observation correct that the company has calculated pension expense on the basis of the following assumptions?
 a. The discount rate is 10 percent.
 b. The expected rate of return on plan assets is 12 percent.
2. Which of the other numbers reported in the disclosure note would the company require in the future? What does the disclosure note report as not actuarial gain or loss, and what is the reason? How are these related? What do the numbers mean?
3. Which components of the pension expense represent deferred recognition? Where are these deferred amounts reported prior to amortization?

The focus of this case is questions 1 and 2 from the previous case. Your professor will divide the class into two to six groups depending on the size of the class. The mission of your group is to assess the correctness of Barney's observation and to suggest the appropriate treatment of the pension obligation. The suggested treatment may not be that required by GAAP.

Required:

1. Explain the difference between a liability to employees and a liability to the pension plan. How is the liability to employees calculated? How is the liability to the pension plan calculated? How is the liability to the pension plan calculated? How is the liability to the pension plan calculated?
2. Assume the liability to the pension plan is a liability to the pension plan. How is the liability to the pension plan calculated? How is the liability to the pension plan calculated? How is the liability to the pension plan calculated? How is the liability to the pension plan calculated?

Since its inception in 1971, the primary objective of the International Accounting Standards Board (IASB) has been to enhance differences worldwide in accounting practices and the presentation of financial information. While progress has been made, the goal is far from having been met. Significant differences exist from company to company in the area of accounting for pensions. These differences impact on reported earnings and financial position in companies where these benefits are significant.

Required:

1. Select a country other than the United States and:
 a. Locate a recent annual report of a company from that country.
 b. Determine the way that pension expense for pensions is reported in that country.
 c. Whether and how the cost of providing pension benefits is reported in that country.
 d. Whether the obligation for the pension benefits is accrued in the balance sheet.
 e. The impact on the income statement of any.
2. Prepare a short report highlighting the similarities and differences between the United States and your chosen country in the way pension benefits are accounted for.

Note: You can obtain copies of annual reports from the company's website, a friendly stockbroker, or EDGAR. The Electronic Data Gathering, Analysis, and Retrieval service of the SEC, at www.edgar.gov, or you can also request them from your library.

You are in your third year as internal auditor with VXX, a high-tech, manufacturing of parts and supplies for jet aircraft. VXX has a defined contribution pension plan in 2014. The plan is a so-called 401(k) plan named after the Tax Code section that specifies the conditions for the favorable tax treatment of these plans that permits voluntary contributions by employees. Employees' contributions are matched with one dollar of employer contributions for every two dollars of employee contribution. Approximately 55% (50% of contributions are deducted from employee paychecks each month for deposits in any of three employee-owned investment funds.

While performing some preliminary work next year, you happen to notice that employee contributions on these plans usually do not show up on annual fund statements for up to two months following the end of pay periods from which the deductions are made. To further investigate, you discover that when the plan was first begun, contributions were deducted within one week of receipt of the funds. When you question the firm's investment manager about the apparent change in the timing of investments, you are told, "Last year Mr. Maxwell (the CFO) directed me to actually deposit the contributions in the corporate investment account. At the close of each quarter, we add the employer matching contributions and deposit the combined amount in specific employee investment funds."

it is:

1. Can the net periodic pension "cost" also be a company's expense to income?
2. Access EDGAR on the Internet at www.sec.gov or through EdgarScan at edgarcan.jwworld.com. Find Yahoo's 2003 annual report and look in the income statement. What if anything is indicated regarding the effect of pensions on earnings?
3. Look at the disclosure notes. What effect of the pension plan on earnings does the note on employee benefits indicate? What is the major contributor to this effect?
4. Companies must report the actuarial assumptions used to make estimates concerning pension plans. Do any of the changes reported by Yahoo impact the effect of the pension plan on reported earnings? Explain.

Research Case 17-14
Investigating the way
employee benefits are
treated on the CPA
exam is an ongoing
topic in the
text.

Key Question

The board of governors of the American Institute of Certified Public Accountants (AICPA) is responsible for preparing the CPA examinations. The boards of accountancy of all 50 states, the District of Columbia, Canada, Puerto Rico, and the U.S. Virgin Islands use the examination as the primary way to measure the technical competence of CPA candidates. The content for each examination section is specified by the AICPA and described in outline form.

Required:

1. Access the AICPA web site on the Internet. The web address is www.aicpa.org.
2. Access the CPA exam section within the site. Locate the exam content portion of the section in which of the four separately graded sections of the exam are postretirement benefits tested?
3. From the AICPA site, access the Board of Accounting for your state. What are the education requirements in your state to sit for the CPA exam?

Analysis Case 17-15
Investigating
postretirement benefits

FedEx Corporation

1999-2000-2001

Refer to the financial statements and related disclosure notes of FedEx Corporation in Appendix 14 of the text of this text.

Required:

1. What types of postretirement benefits other than pensions does FedEx provide its retirees? What are the related assumptions?
2. Is the postretirement benefit plan funded? Explain.

CPA SIMULATION 17-1

Schaeffer Company
Pensions and
Postretirement Benefits

KAPLAN

CPA Review

Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing our CPA simulations at the test website www.kaplan.com/cpa and

The Schaeffer Company simulation tests your knowledge of contingencies, bonds, leases, deferred income taxes, transferring accounts receivables in a secured borrowing, and postretirement benefits.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and professional accounting standards to create, evaluate, derive solutions and communicate conclusions related to the scenarios in simulation. The scenarios are created by the following interactions with

| | | | | | | | | |
|---|------------------------------------|--------------------------------------|--|---|--|--|--|--|
|  | Financial Accounting and Reporting | Time Elapsed: 1 hour 0 minutes |  Calculator |  Spreadsheet |  Standards |  Help |  Exit |  Done |
| Structure: Question: 17-1 Continuous | 11 Items: 1 Item: 17-1 Bonds | 17 Bonds and Leases 11 Communication | | | | | | |
| Result: 17-1 Bonds and Leases | | | | | | | | |

Specific tasks in the simulation include:

- Demonstrating an understanding of financial reporting effects of various contingencies
- Applying judgment in deciding the deferred tax effects of a variety of transactions
- Calculating interest and amortization related to bonds and leases
- Determining the way to calculate financial ratios related to liabilities and when they attempt to measure
- Reversing appropriate accounting for the transfer of accounts receivable to a third party

Pages 886-891 have been intentionally omitted.

Pages 886-891 have been intentionally omitted.

Pages 886–891 have been intentionally omitted.

Pages 886–891 have been intentionally omitted.

Pages 886–891 have been intentionally omitted.

Pages 886-891 have been intentionally omitted.

18

CHAPTER

Shareholders' Equity

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Describe the components of shareholders' equity and explain how they are reported in a statement of shareholders' equity.
- LO2 Describe comprehensive income and its components.
- LO3 Explain the issuance of shares when sold for cash, non-cash consideration, and by share purchase contracts.
- LO4 Describe what occurs when shares are retired and how the retirement is recorded.
- LO5 Distinguish between at-costing, or retired shares, and treasury shares.
- LO6 Describe retained earnings and distinguish it from paid-in capital.
- LO7 Explain the impact of corporate dividends on the equity and distinguish the differences between cash and property dividends.
- LO8 Explain stock dividends and stock splits and how they are accounted for.

FINANCIAL REPORTING CASE



Temple-Inland, Inc.

Finally, you have some uninterrupted time to get back on the net. Earlier today you noticed on the Internet that the market price of Temple-Inland's common stock was up almost 10%. You've been eager to look into why but have had one meeting after another all day.

Temple-Inland, based in Austin, Texas, manufactures corrugated packaging and building products and offers financial services. The company employs 19,500 nationwide. You've been a stockholder of Temple-Inland since the beginning of the year when your home improvement contractor bragged to you about the company's products. The dividends of 36 cents a share that you receive quarterly are nice, but that's not why you bought the stock; you were convinced at the time that the stock price was poised to rise rapidly. That hasn't really happened. A few well-placed clicks of the mouse and you come across the following news article.

AUSTIN, Texas, Feb. 4, 2005 (Business Wire)—At its regularly scheduled meeting, the Board of Directors today declared a regular quarterly dividend of \$1.45 per common share payable March 15, 2005, to shareholders of record March 1, 2005.

This \$1.45 per share dividend is a 26% increase over the prior quarterly dividend of \$1.15 per share and is the third consecutive annual dividend increase. Temple-Inland paid a special dividend of \$1.00 per share in December 2004.

Temple-Inland, Inc. also announced today that its Board of Directors has authorized the repurchase of up to six million shares of its common stock (12 million shares after considering the stock split discussed below). This represents over 10% of the company's current outstanding shares. The repurchases will be accomplished from time to time through open market or privately negotiated transactions.

In addition to the dividend increase and share repurchase authorization, the Board of Directors approved a two-for-one stock split effected in the form of a stock dividend for shareholders of record on March 1, 2005. For every one share of the Company's common stock held on the record date, the holder will receive one additional share. The additional shares resulting from the split will be distributed on April 1, 2005.

Source: Temple-Inland, Inc. press release, Feb. 4, 2005, www.templeinland.com.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Locate your responses on the spaces provided at the end of the chapter.

1. Do you think the stock price increase is related to Temple-Inland's share repurchase plan? (page 919)
2. What are Temple-Inland's choices to account for the share repurchases? (page 910)
3. What effect does the quarterly cash dividend of 45 cents a share have on Temple-Inland's assets? Its liabilities? Its shareholders' equity? (page 915)
4. What effect did the stock split have on Temple-Inland's assets? Its liabilities? Its shareholders' equity? (page 911)

| EXPOSITION CORPORATION | |
|---|--------|
| Balance Sheet | |
| December 31, 2006 | |
| Assets | |
| Current assets | \$ 100 |
| Plant and equipment | 50 |
| Intangible assets | 10 |
| Liabilities | |
| Current liabilities | \$ 40 |
| Long-term liabilities | 10 |
| Shareholders' Equity | |
| Paid-in capital | |
| Common stock, \$10 par value | \$ 100 |
| Preferred stock, \$5 par value | 5 |
| Additional paid-in capital | 5 |
| Retained earnings | |
| Retained earnings, beginning of year | \$ 0 |
| Net income | 10 |
| Retained earnings, end of year | 10 |
| Accumulated other comprehensive income | |
| Accumulated other comprehensive income, beginning of year | \$ 0 |
| Other comprehensive income | 5 |
| Accumulated other comprehensive income, end of year | 5 |
| Treasury stock (at cost) | 10 |
| Total shareholders' equity | \$ 125 |

Note A: The company has a \$10 million of retained earnings at the end of the year. The company has also a \$5 million of accumulated other comprehensive income at the end of the year.

| Assets | Liabilities | Shareholders' Equity |
|---------------------|-----------------------|--|
| Current assets | Current liabilities | Common stock |
| Plant and equipment | Long-term liabilities | Preferred stock |
| Intangible assets | | Additional paid-in capital |
| | | Retained earnings |
| | | Accumulated other comprehensive income |
| | | Treasury stock |

Graphic 18-1 depicts a rather comprehensive statement. It is unlikely that any one company would have shareholders' equity from all of these sources at any one time. Remember that, at this point, our objective is only to get a general perspective of the items constituting shareholders' equity. You should, however, note a few aspects of the statement shown in Graphic 18-1. First, the four components of Exposition Corporation's shareholders' equity are paid-in capital, retained earnings, accumulated other comprehensive income, and treasury stock.

PAID-IN CAPITAL

Paid-in capital consists primarily of resources invested by shareholders when they purchase shares of stock from the corporation. In addition, intangible assets may be invested (or donated) by others on behalf of the shareholders. For Exposition Corporation, shareholders invested \$40 million (\$100 + \$5 + \$5 + \$10 + \$5) = \$40. An additional \$10 million

GRAPHIC 18-1
Detailed Shareholders' Equity Presentation

Assets minus liabilities equals shareholders' equity.

The primary source of the corporation's resources is investment, at times, by shareholders when buying preferred and common stock.

Several other events affect shareholders' equity.

Retained earnings represents earnings earned and kept.

PERSPECTIVE



Our is truly a global economy. Most large U.S. companies are, in fact, multinational companies that may derive only a fraction of their revenues in this country. As a result, many operations are located abroad and foreign operations frequently are denominated in the currency of the foreign country (Japanese yen, Swiss franc, Euro, and so on). When exchange rates change, the dollar equivalent of the foreign currency changes.

Currency rate changes that affect cash flows because they require settlement in a currency other than the entity's functional currency result in foreign currency transaction adjustments. These are reported as gains and losses in the earnings of the period the change occurs. Those that do not require settlement and thus don't affect cash flows are translation adjustments. These are accumulated in a separate component of shareholders' equity—the comprehensive income.

\$8 + 7 + 9 + 5 + 1) of paid-in capital arose from financing activities, bringing the total \$500 million. Later in this chapter, we consider in more detail the events and transactions that affect paid-in capital.

RETAINED EARNINGS

Retained earnings is reported as a single amount, \$1,670 million, but a disclosure also provides additional information about a specific restriction on dividends.

LO2

ACCUMULATED OTHER COMPREHENSIVE INCOME

Also notice that shareholders' equity of Exposition Corporation is adjusted for three items that are not included in net income and so don't affect retained earnings but are part of "other comprehensive income" and therefore are included as separate components of shareholders' equity. Comprehensive income provides a more expansive view of the change in shareholders' equity than does traditional net income. It is the total *nonowner* change in equity in a reporting period. In fact, it encompasses all changes in equity other than those from transactions with owners. Transactions between the corporation and its shareholders that do include dividends and the sale or purchase of shares of the company's stock. Most nonowner changes are reported in the income statement. So, the changes other than those that appear of traditional net income are the ones reported as "other comprehensive income."

Comprehensive income extends our view of income beyond conventional net income to include four types of gains and losses that traditionally haven't been included in income statements:

- 1 Net holding gains (losses) on investments
- 2 Net unrecognized loss on pensions
- 3 Deferred gains (losses) from derivatives
- 4 Gains (losses) from foreign currency translation

The first of these are the gains and losses on securities "available-for-sale" that occur when the fair values of these investments increase or decrease. As you learned in Chapter 16, these gains and losses aren't included in earnings until they are realized through the sale of the securities but are considered a component of *other comprehensive income* in the statement. Similarly, as we discussed in Chapter 17, net unrecognized losses on pensions reduce other comprehensive income but not net income. You have not yet studied the third and fourth potential components of other comprehensive income. As described in Appendix A, "Derivatives," at the back of the textbook, when a net value designated as a *cash flow hedge* is adjusted to fair value, the gain or loss is deferred as a component of other comprehensive income and included in earnings later, at the same time as earnings are affected by the hedged transaction. Gains and losses from changes in foreign currency ex-

Exposition Corporation
Income Statement
For the Year Ended
December 31, 2011

Comprehensive income
extends our view of income
beyond conventional net income
to include four types of gains
and losses that traditionally
haven't been included in
income statements:

change rates are disclosed elsewhere in your accounting curriculum, but also are included in other comprehensive income but not net income.

Other comprehensive income shares another trait with net income. Just as net income is reported periodically and also on a cumulative basis as part of retained earnings, other comprehensive income, too, is reported periodically as it is created and also as accumulated into other comprehensive income in the balance sheet along with retained earnings. In other words, we report the constituents of the comprehensive income (components of comprehensive income) each reporting period and also the total comprehensive income as accumulated over the cumulative reporting period.

The first attribute—components of comprehensive income—exists through the reporting period. All the reporting periods as a shareholder receives the income statement to put in the statement of shareholders' equity. It is a separate line item usually included in the statement of shareholders' equity. Regardless of the treatment a company chooses, the presentation is similar. We report net income, other components of comprehensive income, and total comprehensive income prior to the presentation of Graphical 18-2. Note that each component is representative of its related measure: expense or income tax benefit.

| | | \$ (in millions) |
|--|-----|------------------|
| Net income | | \$654 |
| Other comprehensive income | | |
| Unrealized holding gains (losses) from investments, net | \$5 | |
| Gains (losses) from and adjustments to postretirement benefit plans (net of tax) | \$1 | |
| Deferred gains (losses) from derivative instruments of the | \$1 | |
| Gains (losses) from foreign currency translation (net of tax) | \$1 | |
| Comprehensive income | | \$662 |

GRAPHIC 18-2
Comprehensive Income

| | |
|--|-------|
| Comprehensive income | \$662 |
| Net income | \$654 |
| Other comprehensive income | \$8 |
| Unrealized holding gains (losses) from investments, net | \$5 |
| Gains (losses) from and adjustments to postretirement benefit plans (net of tax) | \$1 |
| Deferred gains (losses) from derivative instruments of the | \$1 |
| Gains (losses) from foreign currency translation (net of tax) | \$1 |

The second measure—the comprehensive income accumulated over the current and prior periods—is reported as a separate component of shareholders' equity following retained earnings, similar to the presentation by Expressen Corporation in Graphic 18-1. Note that amounts reported here—accumulated other comprehensive income—represent the cumulative sum of the changes in each component created during each reporting period (Graphic 18-2, throughout all prior years).

TREASURY STOCK

We discuss the final component of shareholders' equity—treasury stock—later in the chapter. It indicates that some of the shares previously sold were bought back by the corporation from shareholders.

You seldom (if ever) will see this degree of detail reported in the presentation of paid-in capital. Instead, companies keep track of individual additions paid-in capital accounts in company records but ordinarily report these amounts as a single subtotal—additional paid-in capital. Pertinent rights and privileges of various securities outstanding such as dividends and liquidation preferences, call and conversion information, and voting rights are summarized in disclosure notes.⁴ The shareholders' equity portion of the balance sheet of Northwest Airlines, shown in Graphic 18-3 is a typical presentation format.

⁴For details of information about capital structure, "Statement of Financial Accounting Standards No. 129 (Statement of Financial Accounting Standards Board, 1997).

GRAPHIC 18-3

Typical Presentation
Front: Southwest
Airlines

Balance Sheet
Assets
Liabilities
Equity

Assets
Liabilities
Equity

Assets
Liabilities
Equity

Assets
Liabilities
Equity

Assets
Liabilities
Equity

| SOUTHWEST AIRLINES, INC. | | | |
|---|--|---------------|---------------|
| Balance Sheet | | | |
| (Shareholders' Equity Section) | | | |
| | | 2004 | 2003 |
| Stockholders' equity: | | | |
| Common stock, \$1.00 par value, 100,000,000 shares authorized, 47,100,000 shares issued and outstanding | | \$471,000,000 | \$471,000,000 |
| Additional paid-in capital | | 299,000,000 | 299,000,000 |
| Retained earnings | | 4,870,000,000 | 4,870,000,000 |
| Accumulated other comprehensive income | | 9,000,000 | 9,000,000 |
| Less: Preferred stock, \$5.00 par value, 10,000,000 shares authorized, 10,000,000 shares issued and outstanding | | (50,000,000) | (50,000,000) |
| Total stockholders' equity | | \$529,870,000 | \$529,870,000 |

The balance sheet reports annual balances of shareholders' equity accounts. How companies also should disclose the sources of the changes in those accounts.³ This is the purpose of the statement of shareholders' equity. In our example, Graphic 18-4 on the next page shows how Southwest Airlines reports the changes in its shareholders' equity balances shown in Graphic 18-3.

The changes in Southwest Airlines' shareholders' equity accounts are a result of many factors, including the purchase of treasury stock and the payment of dividends.

The Corporate Organization

A company may be organized in any of three ways: (1) a single proprietorship, (2) a partnership, or (3) a corporation. In a corporation, the ownership is divided into shares called stocks or shares of common stock.

Most small business companies are organized as sole proprietorships or partnerships. Although they are simpler to set up and operate, owner businesses are common to all three types of business organizations, though fewer in number than proprietorships and partnerships. In terms of business size, corporations are the predominant form of business organization.

In most respects, transactions are accounted for in the same way regardless of the business organization. Assets and liabilities are unaffected by the way a company is organized. The exception is the method of accounting for capital, the ownership interest in a company. Rather than recording all changes in ownership interests in a single capital account for each owner, as we do for single proprietorships and partnerships, we use the separate capital accounts overviewed in the previous section to record these changes for a corporation. Before discussing how we account for specific ownership changes, let's look at the characteristics of a corporation that make this form of organization distinctive and require special accounting treatment.

LIMITED LIABILITY

The owners are not personally liable for debts of a corporation. Unlike a proprietorship or partnership, a corporation is a separate legal entity, responsible for its own debts and liabilities. Liability is limited to the amounts they invest in the company when they purchase stock (unless the shareholder also is an officer of the corporation). The limited liability of shareholders is perhaps the single most important advantage of corporate organization. In the forms of business, creditors may look to the personal assets of owners for all business debts.

³ "Ownership Changes," APB Opinion No. 27 (New York: AICPA, 1967).

Figure 18-4 Changes in Stockholders' Equity—Southwest Airlines

| SOUTHWEST AIRLINES
Consolidated Statements of Stockholders' Equity | | | | | | |
|--|--------------|--------------------------------|-------------------|---|----------------|----------------|
| Amounts, except per share amounts | Common Stock | Capital in Excess of Par Value | Retained Earnings | Accumulated Other Comprehensive Income (Loss) | Treasury Stock | Total |
| Balance at December 31, 2001 | \$767 | \$ 51 | \$3,228 | \$ (32) | \$ | \$4,014 |
| Issuance of common stock pursuant to employee stock plans | | 6 | | | | 57 |
| Dividends: \$0.15 per share | | 28 | | | | 18 |
| Repurchase of shares: \$0.15 per share | | | 4 | | | 48 |
| Comprehensive income (loss): | | | | | | |
| Net income | | | 247 | | | 247 |
| Unrealized gain on derivative instruments | | | | 88 | | 88 |
| Other | | | | (2) | | 21 |
| Net comprehensive income | | | | | | 12 |
| Balance at December 31, 2002 | 777 | 736 | 3,455 | 54 | | 4,422 |
| Issuance of common stock pursuant to employee stock plans | 17 | 8 | | | | 93 |
| Dividends: \$0.15 per share | | 6 | | | | 1 |
| Repurchase of shares: \$0.15 per share | | | 10 | | | 4 |
| Comprehensive income (loss): | | | | | | |
| Net income | | | 442 | | | 442 |
| Unrealized gain on derivative instruments | | | | 66 | | 66 |
| Other | | | | | | 2 |
| Net comprehensive income | | | | | | 510 |
| Balance at December 31, 2003 | 789 | 290 | 3,883 | 122 | | 5,052 |
| Purchase of shares of treasury stock | | | | | 2461 | (2461) |
| Issuance of common and treasury stock pursuant to employee stock plans | 1 | 1 | (93) | | 75 | 69 |
| Tax benefits on equity-based compensation | | 35 | | | | 35 |
| Dividends: \$0.15 per share | | | 48 | | | 4 |
| Comprehensive income (loss): | | | | | | |
| Net income | | | 1 | | | 1 |
| Unrealized gain on derivative instruments | | | | 233 | | 233 |
| Other | | | | 2 | | 2 |
| Total comprehensive income | | | | | | 608 |
| Balance at December 31, 2004 | 5790 | \$299 | \$4,029 | \$417 | \$ (71) | \$5,324 |

EASE OF RAISING CAPITAL

A corporation is better suited to raising capital than is a proprietorship or a partnership. All companies may raise capital by operating at a profit or by borrowing. However, attracting equity capital is easier for a corporation. Because corporations sell ownership interests in the form of shares of stock, ownership rights are easily transferred. An investor can sell his/her ownership interest at any time and without affecting the corporation or its operations.

From the viewpoint of a potential investor, another favorable aspect of investing in a corporation is the lack of mutual agency. Individual partners in a partnership have the power to bind the business to a contract. Therefore, an investor in a partnership must be careful regarding the character and business savvy of fellow co-owners. On the other hand, shareholders' participation in the affairs of a corporation is limited to voting at shareholders' meetings (unless the shareholder also is a manager). Consequently, a shareholder needn't exercise the same degree of care that partners must in selecting co-owners.

Obviously, then, a corporation offers advantages over the other forms of organization, particularly in its ability to raise investment capital. As you might guess, though, these benefits do not come without a price.

corporation
ownership interests
equity capital

shareholders
mutual agency
shareholders' meetings

DISADVANTAGES

Paperwork! To protect the rights of those who buy a corporation's stock or who loan money to a corporation, the state in which the company is incorporated and the federal government impose expensive reporting requirements. Primarily the required paperwork is intended to ensure adequate disclosure of information needed by investors and creditors.

You read earlier that corporations are separate legal entities. As such, they also are taxable taxable entities. Often this causes what is referred to as *double taxation*. Corporations first pay income taxes on their earnings. Then, when those earnings are distributed as dividends, shareholders pay personal income taxes on the previously taxed earnings. In partnerships and partnerships are not taxed at the business level; each owner's share of the income is taxed only as personal income.

TYPES OF CORPORATIONS

When referring to corporations in this text, we are referring to corporations formed by private individuals for the purpose of generating profits. These corporations raise capital by selling stock. There are, however, other types of corporations.

Some corporations such as churches, hospitals, universities, and charities do not sell stock and are not organized for profit. Also, some not-for-profit corporations are government owned—the Federal Deposit Insurance Corporation (FDIC), for instance. Accounting for not-for-profit corporations is discussed elsewhere in the accounting curriculum.

Corporations organized for profit may be publicly held or privately or closely held. The stock of publicly held corporations is available for purchase by the general public. You can buy shares of General Electric, Ford Motor Company, or Exxon Mobile through a stockbroker. These corporations are listed on a stock exchange, such as the New York Stock Exchange. Their shares are available to all investors. Not all corporations are publicly held.

On the other hand, shares of privately held companies are owned by only a few individuals, perhaps a family, and are not available to the general public. Corporations whose stock is privately held do not need to register those shares with the Securities and Exchange Commission and are spared the voluminous annual reporting requirements of the SEC. Consequently, new sources of equity financing are limited when shares are privately held, as is the market for selling existing shares.

Frequently, companies begin as smaller, privately held corporations. Then, as the business broadens opportunities for expansion, the corporation goes public. For example, in 1996 Google decided to take public the privately held company. The result was the largest technology initial public offering ever.

HYBRID ORGANIZATIONS

A corporation can elect to comply with a special set of tax rules and be designated an S corporation. S corporations have characteristics of both regular corporations and partnerships. Owners have the limited liability protection of a corporation, but income and expenses are passed through to the owners as in a partnership, avoiding double taxation.

Two relatively recent business structures have evolved in response to liability issues in tax treatment—limited liability companies and limited liability partnerships.

A limited liability company offers several advantages. Owners are not liable for the debts of the business, except to the extent of their investment. Unlike a limited partnership, all members of a limited liability company can be involved with managing the business without losing liability protection. Like an S corporation, income and expenses are passed through to the owners as in a partnership, avoiding double taxation, but there are no restrictions on the number of owners as in an S corporation.

A limited liability partnership is similar to a limited liability company, except it can offer all the liability protection available in the limited liability company structure. Partners are liable for their own actions but not entirely liable for the actions of other partners.

THE MODEL BUSINESS CORPORATION ACT

Corporations are formed in accordance with the corporation laws of individual states. State laws are not uniform, but share many similarities, thanks to the widespread adoption of the

Model Business Corporation Act.⁴ This act is designed to serve as a guide to states in the development of their corporation statutes. It presently serves as the model for the majority of states.

State laws regarding the nature of shares that can be authorized, the issuance and repurchase of those shares, and conditions for distributions to shareholders obviously influence actions of corporations. Naturally, differences among state laws affect how we account for many of the shareholders' equity transactions discussed in this chapter. For that reason, we illustrate in the normal case as described by the Model Business Corporation Act, and note situations where variations in state law might require a special accounting. Your goal is not to learn diverse procedures dictated by particular state laws, but to understand the broad concepts of accounting for shareholders' equity that can be applied to any specific jurisdiction.

The process of incorporating a business is similar in all states. The articles of incorporation (sometimes called the *corporate charter*) describe (a) the nature of the firm's business activities, (b) the shares to be issued, and (c) the composition of the initial board of directors. The board of directors establishes corporate policies and appoints officers who manage the corporation.

At least some of the shares authorized by the articles of incorporation are sold at the inception of the corporation. Frequently, the initial shareholders include members of the board of directors or officers (who may be one and the same). Ultimately, it is the corporation's shareholders that control the company. Shareholders are the owners of the corporation. By voting their shares, it is they who determine the makeup of the board of directors—who in turn appoint officers, who in turn manage the company.

Shareholders' investment in a corporation ordinarily is referred to as paid-in capital. In the next section, we examine the methods normally used to maintain records of shareholders' investment and to report such paid-in capital in financial statements.

The following journal entry records the issuance of shares.

Journal Entry

PAYD-IN CAPITAL

PART B

Fundamental Share Rights

In reading the previous paragraphs, you noted that corporations raise equity funds by selling shares of the corporation. Shareholders are the owners of a corporation. If a corporation has only one class of shares, no designation of the shares is necessary, but they typically are labeled *common shares*. Ownership rights held by common shareholders, unless specifically withheld by agreement with the shareholders, are:

- The right to vote on matters that come before the shareholders, including the election of corporate directors. Each share represents one vote.
- The right to share in profits when dividends are declared. The percentage of shares owned by a shareholder determines his/her share of dividends distributed.
- The right to share in the distribution of assets if the company is liquidated. The percentage of shares owned by a shareholder determines his/her share of assets after creditors and preferred shareholders are paid.

Another right sometimes given to common shareholders is the right to maintain one's percentage share of ownership when new shares are issued. This is referred to as a *preemptive right*. Each shareholder is offered the opportunity to buy a percentage of any new shares issued equal to the percentage of shares he/she owns at the date. In most states this right must be specifically granted; otherwise, it is presumed unless contractually excluded.

This right usually is withheld because of the inconvenience it causes corporations when they issue new shares. The exclusion of the preemptive right usually is inconsequential because few shareholders own enough stock to be concerned about their ownership percentage.

The following journal entry records the issuance of shares.

4. Model Business Corporation Act, the 1963 and 1984 Amendments, 1964.

Distinguishing Classes of Shares

It is not uncommon for a firm to have more than one, and perhaps several, classes of shares, each with different rights and limitations. To attract investors, companies have devised quite a variety of ownership securities.

If more than one class of shares is authorized by the articles of incorporation, the rights of each, for instance, the right to vote, residual interest in assets, and dividend rights, must be stated. Also, some designation must be given to distinguish each class.

Some of the distinguishing designations often used are

1. Class A, class B, and so on (Tyson Foods).
2. Preferred stock, common stock, and class B stock (Hershey Foods).
3. Common and preferred (Hewlett Packard).
4. Capital stock (Reader's Digest).
5. Common and serial preferred (Smucker).

In your introductory study of accounting, you probably became most familiar with the common stock–preferred stock distinction. That terminology has deep roots in time. Early English corporate charters provided for shares that were preferred over others as to dividends and liquidation rights. These provisions were reflected in early American incorporation laws. But as our economy developed, corporations increasingly felt the need for innovative ways of attracting investment capital. The result has been a gradual development of a wide range of share classifications that cannot easily be identified by these traditional designations.

To reflect the flexibility that now exists in the creation of equity shares, the Model Business Corporation Act, and thus many state statutes, no longer mention the words common and preferred. But the influence of tradition lingers. Most corporations still designate shares as common or preferred. For consistency with practice, the illustrations you study in this chapter use those designations. As you consider the examples, keep in mind that the same concepts apply regardless of the language used to distinguish shares.

TYPICAL RIGHTS OF PREFERRED SHARES

An issue of shares with certain preferences or features that distinguish it from the class shares customarily called common shares may be assigned any of the several combinations noted earlier. Very often the distinguishing designation is preferred shares. The specific rights of preferred shareholders usually include one or both of the following:

- a. Preferred shareholders typically have a preference to a specified amount of dividends (stated dollar amount per share or % of par value per share). That is, if the board of directors declares dividends, preferred shareholders will receive the designated dividend before any dividends are paid to common shareholders.
- b. Preferred shareholders customarily have a preference over common shareholders as to the distribution of assets in the event the corporation is dissolved.

Preferred shareholders sometimes have the right of conversion which allows them to exchange shares of preferred stock for common stock at a specified conversion ratio. Alternatively, a redemption privilege might allow preferred shareholders the option, under specified conditions, to return their shares for a predetermined redemption price. For instance, in 2003, Xerox Corporation had outstanding 6.4 million shares of convertible preferred stock. Preferred shareholders have preference over common stockholders in dividends and liquidation rights. Each preferred share is convertible into common shares or an amount of cash. Similarly, shares may be redeemable at the option of the issuing corporation (sometimes referred to as *callable*).

Preferred shares may be cumulative or noncumulative. Typically, preferred shares are cumulative, which means that if the specified dividend is not paid in a given year, the dividends (called *dividends in arrears*) accumulate and must be made up in a later year before any dividends are paid on common shares.

Preferred shares may be participating or nonparticipating. A participating share allows preferred shareholders to receive additional dividends beyond the stated amount.

Terminology varies in the way companies

predict the rights and privileges of shares on the basis of whether they are labeled

preferred shares are fully participating in the distribution of dividends to common and preferred shareholders in a pro rata allocation based on the relative par value amounts of common and preferred stock outstanding. Participating preferred stock, previously quite common, is rare today.

Remember that the designations of common and preferred imply no necessary rights, privileges, or limitations of the shares so designated. Such relative rights must be specified in the contract with shareholders. A corporation can create classes of preferred shares that are indistinguishable from common shares in voting rights and/or the right to participate in assets (distributed as dividends or distributed upon liquidation). Likewise, it is possible to create classes of common shares that possess preferential rights, superior to those of preferred shares.

IS IT EQUITY OR IS IT DEBT?

We probably also can imagine an issue of preferred shares that is almost indistinguishable from a bond issue. Let's say for instance that preferred shares call for annual cash dividends

If the par value is identical to principal and the shares are redeemed for cash at par, then the contract with preferred shareholders can be worded in such a way that directors are compelled to declare dividends each year the company is profitable. For a profitable company it would be difficult to draw the line between this issue of preferred shares and a 10%, 10-year bond issue. Even in a more typical situation, preferred shares are somewhat hybrid securities—a cross between equity and debt.

Sometimes the similarity to debt is even more obvious. Suppose shares are mandatorily redeemable—the company is obligated to buy back the shares at a specified future date. The fact that the company is obligated to pay cash (or other assets) at a fixed or determinable date in the future makes this financial instrument analogous to debt. A mandatorily redeemable financial instrument must be reported in the balance sheet as a liability, not as shareholders' equity.³ Microsoft, for instance, reported its mandatorily redeemable preferred shares as a liability in its 2004 balance sheet.

Common shares are not mandatorily redeemable and equity is hard to define.

Preferred shares and equity is hard to define.

Mandatorily redeemable shares are liabilities.

The Concept of Par Value

Another prevalent practice (besides labeling shares as common and preferred) that has little significance other than historical is assigning a par value to shares. The concept of par value dates back as far as the concept of owning shares of a business. Par value originally indicated the real value of shares. All shares were issued at that price.

During the late 19th and early 20th centuries, many cases of selling shares for less than par value—known as *watered shares*—received a great deal of attention and were the subject of a number of lawsuits. Investors and creditors contended that they relied on the par value as the permanent investment in the corporation and therefore net assets must always be at least that amount. Not only was par value assumed to be the amount invested by shareholders, but it also was defined by early corporation laws as the amount of net assets not available for distribution to shareholders (as dividends or otherwise).

Many companies began issuing no par value shares with very low par values—often pennies—to escape the watered shares liability of issuing shares below an arbitrary par value and to limit the restrictions on distributions. This practice is common today.

Accountants and attorneys have been aware for decades that facts pertaining to par value and legal capital not only are bewildering but fail in their intent to safeguard creditors from payments to shareholders. Actually, to the extent that creditors are led to believe that they are afforded protection, they are misled. Like the designations of common and preferred shares, the concepts of par value and legal capital have been eliminated entirely from the Model Business Corporation Act.⁴

We have inherited the value from early corporate laws.

Shares with nominal

rules pertaining to par value shares.

³ See the International Financial Reporting Standards with Commentary of Basic Definitions and Equity, *Statement of Financial Accounting*.

⁴ Section 1.01, paragraph 100, MBSA 1994.

⁵ The Act also states that the par value of shares is not to be less than the stated value of the shares.

$$M(\alpha) = \frac{1}{\Gamma(\alpha)} \int_0^\infty t^{\alpha-1} e^{-t} dt$$

Many states already have adopted these provisions of the Model Act. But most established corporations issued shares prior to changes in the state statutes. Consequently, most companies have par value shares outstanding and continue to issue previously authorized par value shares. The evolution will be gradual to the simpler, more meaningful, provisions of the Model Act.

In the meantime, accountants must be familiar with the outdated concepts of par value and legal capital in order to properly record and report transactions related to par value shares.¹ For that reason, most of the discussion in this chapter centers around par value shares. Largely, it discusses only that proceeds from shareholders' investment is allocated between stated capital and additional paid-in capital. Be aware, though, that in the absence of archival laws that prohibit the creation of par value shares, there is no theoretical reason to do so.

Accounting for the Issuance of Shares

SHARPS ISSUED FOR CASH

When shares are sold for cash, the entry in stock account (usually common or preferred) credited for the amount representing stated capital. When shares have a designated par value, that amount denotes stated capital and is credited to the stock account. Proceeds in excess of this amount are credited to paid-in capital—excess of par.

■ L05

ILLUSTRATION 12.1

Shops Sold or Leased

| | | \$ in 100s | |
|---|--|------------|-----|
| Cash 100,000 shares at \$10 price per share | | 1,000 | |
| Common stock (100,000 shares at \$1 par per share) | | | 100 |
| Paid in Capital— excess of par (remainder) | | | 900 |
| The entire proceeds from the sale of new stock are counted stated capital and recorded in the stock account. If the shares are no par, the entry is as follows: | | | |
| Cash 100,000 shares at \$10 price per share | | 1,000 | |
| Common stock | | | 100 |

SHARES ISSUED ON CREDIT

Preincorporation Subscription Agreements. In times past capital to finance new ventures ordinarily was raised by obtaining subscriptions for shares of the impending corporation. These preincorporation subscription agreements typically specified that the subscriber would purchase a certain number of shares if a specified amount of venture capital was obtained.

A difficult issue was determining what is any legal recourse the new company had if a subscriber defaulted. That issue seldom is encountered today. State and federal laws that require elaborate procedures for the registration of new securities make subscription agreements impractical for new ventures. Venture financing by subscription is virtually an artifact of the past. Simple contracts to sell shares have replaced preincorporation subscription agreements.

Share Purchase Contracts and Stock Subscriptions. After incorporation, a subscription agreement is a contract between the subscriber and the corporation. When shares are sold by share purchase contract, shares ordinarily are sold in exchange for a promissory note from the subscriber. In essence, the shares are sold on credit. Recreating the sale of shares modified only by including a receivable for the portion of the selling price not yet received.

For illustration, assume the shares described in Illustration 18-1 are sold by share purchase contract, with 60% of the selling price to be received after six months.

new industrialists and issues 100,000 of its common shares at \$1 per share. The shares are sold by share purchase contracts at \$10 per share with 900,000 shares have been issued by the company. The shares are issued from being sold and the voting privileges are based on the

| | \$ in 100s |
|-------------------------------|------------|
| Common stock | 100 |
| Paid-in capital—excess of par | 900 |

ILLUSTRATION 18-2

Share Purchase Contracts

| | |
|-------------------------------|-----|
| Common stock | 100 |
| Paid-in capital—excess of par | 900 |

Some believe that the generally accepted accounting principles the company should follow should be presented as a solution to shareholders. The net effect of the accounting entry is to overstate both the receivable and the modern equity.

Reporting the Receivable. How should the receivable be reported? Your initial response probably is that this account is an asset, similar to accounts receivable. Why should the receivable be precluded from being an asset merely because it is exchanged for shares rather than assets?

We can look to an infamous event in accounting history for a persuasive answer. For much of 2000 and the first part of 2001, Enron Corporation invested Enron stock in (and committed Enron stock to) "special purpose entities" that were created by Enron. To record these investments and commitments, Enron debited "receivables" and credited shareholders' equity in the described above. The problem, though, that contributed to Enron's collapse was that it then reported the result as an increase in both assets and shareholders' equity, creating a \$1.2 billion asset that didn't really exist. Enron eventually restated its financial statements, referring to its actions as an "accounting error." Rules in place at the time prohibited such accounting. Instead, a receivable from issuing shares is not an asset, but should be reported as a *reduction in paid-in capital*.¹ Dow Industrial's paid-in capital, immediately after the stock subscription described in Illustration 18-2, would be reported by this approach as:

yet that didn't really exist. Enron eventually restated its financial statements, referring to its actions as an "accounting error." Rules in place at the time prohibited such accounting. Instead, a receivable from issuing shares is not an asset, but should be reported as a *reduction in paid-in capital*.¹ Dow Industrial's paid-in capital, immediately after the stock subscription described in Illustration 18-2, would be reported by this approach as:

| | \$ in 100s |
|---|--------------|
| Paid-in capital | |
| Common stock, 100,000 shares at \$1 per | 100 |
| Paid-in capital—excess of par | 900 |
| Less: Receivable from share purchase contract | (800) |
| Total paid-in capital | \$400 |

A receivable from issuing shares is not an equity account and is not an asset.

Reporting the receivable as a contra equity account results in reporting total paid-in capital only to the extent that capital actually has been contributed. This is the prevalent practice.

SHARES ISSUED FOR NONCASH CONSIDERATION

Occasionally, a company might issue its shares for consideration other than cash. It is not uncommon for a new company, yet to establish a reliable cash flow, to pay for promotional and legal services with shares rather than with cash. Similarly, shares might be given in payment for land, or for equipment, or for some other noncash asset.

Even without a receipt of cash to establish the fair market value of the shares at the time of the exchange, the transaction still should be recorded at fair market value. Best evidence of fair market value might be:

Shares should be issued at fair market value.

1. A quoted market price for the shares.
2. A selling price established in a recent issue of shares for cash.

¹ See footnote 14 in Exhibit 18-1 for details.

The following information is provided by EITF Issue 95-1, "Classifying Notes Received in Capital Stock," and SEC Regulation S-X, "Financial Statements of Issuers," which are part of the Financial Accounting Standards Board's (FASB) Accounting Standards Codification (ASC) 260-10-01.

- The amount of cash that would have been paid in a cash purchase of the asset or service.
- An independent appraisal of the value of the asset received.
- Other available evidence.

Whichever evidence of fair market value appears more clearly evident should be used.¹

Illustration 18-3 demonstrates a situation where the quoted market price is the best evidence of fair value.

Illustration 18-3

Shares Sold for Noncash Consideration

The quoted market price for the shares received might be the best evidence of fair market value.

DuMont Chemicals issues 1 million of its common shares, \$1 per par share, in exchange for a custom-built factory for which no cash price is available. Today's issue of *The Wall Street Journal* lists DuMont's stock at \$10 per share!

| | (\$ in millions) |
|---|------------------|
| Property, plant, and equipment (1 million shares at \$10 per share) | 10 |
| Common stock (1 million shares at \$1 par per share) | |
| Paid-in capital—excess of par (remainder) | 9 |

MORE THAN ONE SECURITY ISSUED FOR A SINGLE PRICE

Although uncommon, a company might issue more than one security—perhaps common shares and preferred shares—for a single price. You might expect the cash received initially to be split in the separate market values of the two securities. Of course, each is then recorded at its market value. However, if only one security's value is known, the second security's market value is inferred from the total selling price as demonstrated in Illustration 18-4.

Illustration 18-4

More than One Security Sold for a Single Price

When only one security's value is known, the value of the other security is inferred from the total selling price.

AP&P issues 4 million of its common shares, \$1 per par share, and 4 million of its preferred shares, \$10 per par. For \$100 million. Today's issue of *The Wall Street Journal* lists AP&P's common at \$10 per share. There is no established market for the preferred shares.

| | \$ in millions |
|---|----------------|
| Cash | 100 |
| Common stock (4 million shares × \$1 per share) | 4 |
| Paid-in capital—excess of par, common | 36 |
| Preferred stock (4 million shares × \$10 par) | 40 |
| Paid-in capital—excess of par, preferred | 20 |

Because the shares sell for a total of \$100 million, and the market value of the common shares is known to be \$40 million (4 million × \$10), the preferred shares are inferred to be a market value of \$60 million.

ADDITIONAL CONSIDERATIONS

In the unlikely event that the total selling price is not equal to the sum of the two market prices (when both market values are known), the total selling price is allocated between the two securities in proportion to their relative market values. You should note that this is the same approach we use (a) when more than one asset is purchased for a single purchase price to allocate the single price to the various assets acquired, (b) when detachable warrants and bonds are issued for a single price, and for any other situation where more than one item is associated with a single purchase price or selling price.

¹ Although it is rare, the company might receive more than one offer for the shares. In such a case, the company should use the highest offer received as the best evidence of fair market value.

SHARE ISSUE COSTS

When a company sells shares, it obtains the legal, promotional, and accounting services necessary to effect the sale. The cost of these services reduces the net proceeds from selling the shares. Since paid-in capital—excess of par is credited for the excess of the proceeds over the par value of the shares sold, the effect of share issue costs is to reduce the amount credited to that account. For example, if a company sells 100,000 shares of \$100 shares at a price of \$17.75 per share, the **Durivon Company, Inc.** noted in its financial statements: "The proceeds of the offering, after deducting all associated costs, were \$13.49 (63%) of \$21.25 per newly issued share." Durivon's entry to record the sale was:

| | \$ in millions |
|--|----------------|
| Dr Cash (63% 200,000 shares at \$17.75 per share) | 3.49 |
| Cr Paid-in capital—excess of par (100,000 shares at \$13.49 per share) | 63 |
| Cr Paid-in capital—excess of par (100,000 shares at \$13.49 per share) | 2.46 |

You should notice that not separately reporting issue costs differs from how **debt issue costs** are recorded. In Chapter 4 you learned that the costs associated with a debt issue are recorded in a separate liability—some costs, including underwriting fees, are expensed over the life of the debt.

It can be argued that share issue costs and debt issue costs are fundamentally different. That view would argue that a debt issue has a fixed maturity and, like interest expense, debt issue costs are part of the expense of borrowing funds for that period of time (even though it's recorded in a separate expense account—debt issue expense). Selling shares, on the other hand, represents a perpetual equity interest. Dividends paid on that capital investment are not an expense; neither are the costs of obtaining that capital investment (share issue costs).

Although expensing debt issue costs presently is required by GAAP, the FASB has suggested in *Concept Statement 6* that those costs should be treated the same way as share issue costs. That is, the recorded amount of the debt would be reduced by the debt issue costs instead of recording the costs separately as an asset. Remember, though, that concept statements do not constitute GAAP, so until a new FASB standard is issued to supersede *APB Opinion 27*, the prescribed practice is to record debt issue costs as assets and expense the asset over the maturity of the debt.

Share issue costs reduce the net cash from the sale of shares. The net cash from the sale of shares is the proceeds from the sale of shares minus the share issue costs.

The net cash from the sale of shares is the proceeds from the sale of shares minus the share issue costs.

Like interest, debt issue costs are an expense over the life of the debt.

Like dividends, share issue costs are not an expense.

CONCEPT REVIEW EXERCISE

Situation: The shareholders' equity section of the balance sheet of National Foods, Inc., included the following accounts at December 31, 20X4:

| Shareholders' Equity | \$ in millions |
|--|----------------|
| Paid-in capital: | |
| Common stock—120 million shares at \$1 par | \$ 120 |
| Paid-in capital—excess of par | 836 |
| Retained earnings | <u>2,449</u> |
| Total shareholders' equity | \$3,405 |

EXPANSION OF CORPORATE CAPITAL

During 20X5, several transactions affected the stock of National Foods. Prepare the appropriate entries for these events:

- On March 11, National Foods sold 10 million of its 9% preferred shares, \$1 par per share, for \$44 per share by share purchase contract. 50% of the selling price was received at the time of sale, a five-year note was received for the remainder. The shares were not issued until the money from the note was paid.
- On November 22, 10 million common shares, \$1 par per share, were issued in exchange for eight labeling machines. Each machine was built to custom specifications so no cash price was available. National Foods's stock was listed at \$10 per share.
- On November 23, 10 million of the common shares and 10 million preferred shares were sold for \$60 million. The preferred shares had not traded since March and their market value was uncertain.

- 2 Prepare the shareholders' equity section of the comparative balance sheets for National Foods at December 31, 2005 and 2004. Assume that net income for 2005 was \$400 million and the only other transaction affecting shareholders' equity was the payment of the 9.2% dividend on the 1 million preferred shares (\$1 million).

STUDENT ACTION

During 2005 several transactions affected the stock of National Foods. Prepare the appropriate entries for these events.

- a. On March 11, National Foods sold 10 million of its preferred shares, \$1 per share, for \$44 per share by share purchase contract.

| | (\$ in millions) |
|---|------------------|
| Cash | 440 |
| Receivable from share purchase contract | 220 |
| Preferred stock (10 million shares × \$1 per share) | 10 |
| Paid-in capital—excess of par, preferred | 430 |

- b. On November 22, 1 million common shares, \$1 per share, were issued in exchange for 3 labeling machines.

| | |
|--|----|
| Machinery (fair value of shares) | 10 |
| Common stock (1 million shares × \$1 per share) | 1 |
| Paid-in capital—excess of par, common (1 million shares × \$9) | 9 |

- c. On November 23, 1 million of the common shares and 1 million preferred shares were sold for \$61 million.

| | (\$ in millions) |
|---|------------------|
| Cash | 60 |
| Common stock (1 million shares × \$1 per share) | 1 |
| Paid-in capital—excess of par, common | 9 |
| Preferred stock (1 million shares × \$1 per share) | 1 |
| Paid-in capital—excess of par, preferred (to balance) | 49 |

- 2 Prepare the shareholders' equity section of the comparative balance sheets for National Foods at December 31, 2005 and 2004.

NATIONAL FOODS, INC. Balance Sheet (Shareholders' Equity Section)

| | (\$ in millions) | |
|---|------------------|----------------|
| | 2005 | 2004 |
| Shareholders' Equity | | |
| Preferred stock, 9.2%, \$1 par (2005: \$10 million; 2004: 1 million) | \$ 10 | 1 |
| Common stock, \$1 par (2005: 520 million; 2004: 519 million) | 520 | 519 |
| Paid-in capital—excess of par, preferred
(2005: \$430 million + \$9 million) | 439 | |
| Paid-in capital—excess of par, common
(2005: \$846 million + \$9 million; 2004: \$846 million) | 855 | 846 |
| Less: Receivable from share purchase contract | (220) | |
| Retained earnings (2004: \$2,449 million + \$400 million + \$1 million) | 2,849 | 2,449 |
| Total shareholders' equity | \$4,094 | \$3,415 |

Note: This situation is continued in the next Concept Review Exercise on page 913.

Share Buybacks

LO4

In the previous section we examined various ways stock might be issued. In this section, we look at situations in which companies reacquire shares previously sold. Most medium- and

large-scale corporations occasionally buy back their own shares. Many have formal share repurchase plans. The motivation often is to support the market price of the shares.

DECISION MAKERS' PERSPECTIVE

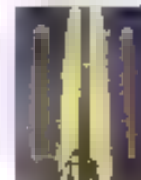
When a company's management feels the market price of its stock is undervalued, it may attempt to support the price by decreasing the supply of stock in the marketplace. A Johnson & Johnson announcement that it planned to buy back up to \$5 billion of its outstanding shares triggered a buying spree that pushed the stock price up by more than 3 percent.

When announcing plans to repurchase up to \$1 billion of its shares, Compaq chairman and chief executive officer Michael Capellas explained, "At current price levels, we believe Compaq's stock offers a tremendous investment opportunity for the company."¹⁰ Although clearly a company may attempt to increase net assets by buying its shares at a low price and selling them back later at a higher price, that investment is not viewed as an asset. Similarly, increases and decreases in net assets from that activity are not reported as gains and losses in the company's income statement. Instead, buying and selling its shares are transactions between the corporation and its owners, analogous to retiring shares and then selling previously issued shares. You should note the contrast between a company's purchasing of its own shares and its purchasing of shares in another corporation as an investment.

Though not considered an investment, the repurchase of shares often is a judicious use of a company's cash. By increasing per share earnings and supporting share price, shareholders benefit. When IBM announced its second \$3.5 billion buyback of common stock the same year, Merrill Lynch & Co. commented, "I think it's a reasonable use of cash. How many investment opportunities do they have that can return cost of capital? They should be investing up to that point, and beyond that they should return cash to the shareholders."¹¹

To the extent this strategy is effective, a share buyback can be viewed as a way to "distribute" company profits without paying dividends. Capital gains from any stock price increase are taxed at lower capital gains tax rates than ordinary income tax rates on dividends.

Perhaps the primary motivation for most stock repurchases is to offset the increase in shares that routinely are issued to employees under stock award and stock option compensation programs. Microsoft's 2004 financial statements reported its stock buyback program designed to offset the effect of its stock option and stock purchase plans as shown in Graphic 18-5.



Learning Objectives

LO 1 Explain the components of a company's equity.

FINANCIAL REPORTING CASE

Case 18-1

Case 18-2

Case 18-3

Case 18-4

Case 18-5

Case 18-6

Case 18-7

Case 18-8

GRAPHIC 18-5

Offsetting of Share Repurchase Program, Microsoft

Note 19: Shareholders' Equity (in part)

Microsoft's share repurchase program is designed to offset the effect of its stock option and stock purchase plans. The program is designed to offset the effect of its stock option and stock purchase plans.

Similarly, shares might be reacquired to distribute in a stock dividend, a proposed merger, or as a defensive against a hostile takeover.

Whatever the reason shares are repurchased, a company has a choice of how to account for the buyback:

1. The shares can be formally retired.
2. The shares can be called treasury stock.

Unfortunately, the choice is not dictated by the nature of the buyback, but by practical motivations of the company. ■

¹⁰ "Compaq Reports Stock Buyback," *Wall Street Journal*, September 28, 1999.

¹¹ "IBM Announces Second \$3.5 Billion Buyback of Common Stock," *Wall Street Journal*, September 28, 1999.

¹² The firm's stock repurchase program is designed to offset the effect of its stock option and stock purchase plans. The program is designed to offset the effect of its stock option and stock purchase plans. The program is designed to offset the effect of its stock option and stock purchase plans.

FINANCIAL REPORTING CASE

Q2 p. 895

Read the case and answer the questions that follow. The case is located in the Financial Reporting Case section of the textbook.

SHARES FORMALLY RETIRED OR VIEWED AS TREASURY STOCK

When a corporation retires its own shares, those shares assume the same status as authorized but unissued shares, just the same as if they never had been issued. We saw earlier in the chapter that when shares are sold, both cash (usually) and shareholders' equity are increased; the company becomes larger. Conversely, when cash is paid to retire stock, the effect is to decrease both cash and shareholders' equity; the size of the company literally is reduced.

Out of tradition and for practical reasons, companies usually reacquire shares of previously issued stock without formally retiring them.¹³ Shares repurchased and not retired are referred to as treasury stock. Because reacquired shares are essentially the same as shares that never were issued at all, treasury shares have no voting rights nor do they receive dividends. Like the concepts of par value and legal capital, the concept of treasury shares no longer is recognized in most state statutes.¹⁴ Some companies, in fact, are eliminating treasury stock from their financial statements as corporate statutes are modernized.

ACCOUNTING FOR RETIRED SHARES

When shares are formally retired, we should reduce precisely the same accounts that previously were increased when the shares were sold, namely, common (or preferred) stock and paid-in capital—excess of par. The first column of Illustration 18-5 demonstrates that the paid-in capital—excess of par account shows a balance of \$900 in 1999, which is the amount

ILLUSTRATION 18-5

Comparison of Share Retirement and Treasury Stock Accounting: Share Buybacks

Assume that the company has 1 million shares outstanding at the end of 1998. The company decides to repurchase 1 million shares at \$13 per share. The company has a cash balance of \$13 million at the end of 1998. The company has a retained earnings balance of \$10 million at the end of 1998. The company has a common stock balance of \$1 million at the end of 1998. The company has a paid-in capital—excess of par balance of \$900 at the end of 1998. The company has a treasury stock balance of \$0 at the end of 1998.

At the end of 1999, the company has 0 shares outstanding. The company has a cash balance of \$0 at the end of 1999. The company has a retained earnings balance of \$10 million at the end of 1999. The company has a common stock balance of \$0 at the end of 1999. The company has a paid-in capital—excess of par balance of \$0 at the end of 1999. The company has a treasury stock balance of \$0 at the end of 1999.

American Semiconductor's balance sheet included the following

| Shareholders' Equity | \$ in millions |
|---|----------------|
| Common stock, 100 million shares at \$1 par | \$ 100 |
| Paid-in capital—excess of par | 900 |
| Paid-in capital—share repurchase | 2 |
| Retained earnings | 3,000 |

| Retirement | | Treasury Stock | |
|---|----|-----------------------|----|
| Redeemed 1 million of its common shares | | | |
| Case 1: Shares repurchased at \$7 per share | | | |
| Common stock (\$1 par × 1 million shares) | 1 | Treasury stock (cost) | 7 |
| Paid-in capital—excess of par (\$9 per share) | 9 | | |
| Paid-in capital—share repurchase (difference) | 2 | | |
| Cash | | Cash | 7 |
| OR | | | |
| Case 2: Shares repurchased at \$13 per share | | | |
| Common stock (\$1 par × 1 million shares) | 1 | Treasury stock (cost) | 13 |
| Paid-in capital—excess of par (\$9 per share) | 9 | | |
| Paid-in capital—share repurchase | 2* | | |
| Retained earnings—share repurchase | | | |
| Cash | 13 | Cash | 13 |

*Difference between \$13 and \$11.

The company's balance sheet included the following information at the end of 1998. The company has 1 million shares outstanding at the end of 1998. The company has a cash balance of \$13 million at the end of 1998. The company has a retained earnings balance of \$10 million at the end of 1998. The company has a common stock balance of \$1 million at the end of 1998. The company has a paid-in capital—excess of par balance of \$900 at the end of 1998. The company has a treasury stock balance of \$0 at the end of 1998.

stock account shows a balance of \$3.00 million. Thus the 30 million outstanding shares were originally sold for an average of \$9 per share above par, or \$4.50 per share. Consequently, when 1 million shares are retired (regardless of the retirement price), American Semiconductors should reduce its common stock account by \$4.50 per share and its paid-in capital—excess of par by \$9 per share. Another way to view the reduction is that because 1% of the shares are retired, both share account balances (common stock and paid-in capital—excess of par) are reduced by 1%.

How we treat the difference between the cash paid to buy the shares and the amount the shares originally sold for depends on whether the cash paid is less than the original issue price (credit difference) or the cash paid is more than the original issue price (debit difference):

1. If a **credit** difference is created (as in Case 1 of Illustration 18-5), we credit paid-in capital—share repurchase.
2. If a **debit** difference is created (as in Case 2 of Illustration 18-5), we debit paid-in capital—share repurchase, but only if that account already has a credit balance. Otherwise, we debit retained earnings. (Reducing the account beyond its previous balance would create a negative balance.)

Why is paid-in capital credited in Case 1 and retained earnings debited in Case 2? The answer lies in the fact that the payments made by a corporation to repurchase its own shares are a distribution of corporate assets to shareholders.

In Case 1, only \$7 million is distributed to shareholders to retire shares that originally provided \$10 million of paid-in capital. Thus, some of the original investment—\$3 million in this case—remains and is labeled *paid-in capital—share repurchase*.

In Case 2, more cash (\$13 million) is distributed to shareholders to retire shares than originally was paid in. The amount paid to purchase the shares exceeds the original investment of \$10 million for the shares being retired plus \$2 million of paid-in capital created by previous repurchase transactions—\$12 million total. Thirteen million is returned to shareholders. The additional \$1 million paid is viewed as a dividend on the shareholders' investment and has a reduction of retained earnings.³

ACCOUNTING FOR TREASURY STOCK

We view the purchase of treasury stock as a temporary reduction of shareholders' equity, so we consider later when the treasury stock is resold. The cost of acquiring the shares is "temporarily" debited to the treasury stock account (see the column of Illustration 18-5).

Recording the effects on specific shareholders' equity accounts is delayed until later when the shares are resold. In the meantime, the shares assume the fictional status we discussed earlier of being neither owned nor outstanding. Effectively, we consider the purchase of treasury stock and its subsequent resale to be a "single transaction."⁴

ADDITIONAL CONSIDERATION

The approach to accounting for treasury stock we discuss in this chapter is referred to as the **cost method**. Another permissible approach is the **par value method**, which is virtually identical to formally retiring shares, which is why the retirement method of accounting for treasury stock in Companies' stock in each of the journals. For retirement of shares in Illustrations 18-5 and 18-6, we use the par value method. Because the method has virtually disappeared from practice, we do not discuss it further in this chapter.

this chapter is referred to as the **par value method**. It is as sometimes is referred to as **retirement**. For retirement of shares in Illustrations 18-5 and 18-6, we use the par value method. Because the method has virtually disappeared from practice, we do not discuss it further in this chapter.

| Account | Debit | Credit |
|----------------------------------|-----------|-----------|
| Treasury Stock | 1,000,000 | |
| Paid-in Capital—Share Repurchase | | 1,000,000 |
| Retained Earnings | | |
| Common Stock | | |

| Account | Debit | Credit |
|----------------------------------|-----------|-----------|
| Treasury Stock | 1,000,000 | |
| Paid-in Capital—Share Repurchase | | 1,000,000 |
| Retained Earnings | | |
| Common Stock | | |

LOS

| Account | Debit | Credit |
|----------------------------------|-----------|-----------|
| Treasury Stock | 1,000,000 | |
| Paid-in Capital—Share Repurchase | | 1,000,000 |
| Retained Earnings | | |
| Common Stock | | |

Balance Sheet Effect. Formally retiring shares restores the balances in both the Common stock account and Paid-in capital—excess of par to what these balances would have been if the shares had never been issued.

³ In the par value method, the additional \$1 million would be considered a dividend on the shareholders' investment and would be recorded as a reduction of retained earnings.

⁴ This is the case in the par value method.

been if the shares never had been issued at all. As discussed above, any net increase in assets resulting from the sale and subsequent repurchase is reflected as Paid-in capital—share repurchase. On the other hand, any net decrease in assets resulting from the sale and subsequent repurchase is reflected as a reduction in retained earnings.

In contrast, when a share repurchase is viewed as treasury stock, the cost of the shares repurchased is simply reported as a reduction of total shareholders' equity. Reporting under the two approaches is contrasted in Graph 18-6 since the situation described above for American Vermiculite's offer to reacquire 1 million shares of its own stock in Illustration 18-5 (Case 2) is repeated. Notice that either way, total shareholders' equity is the same.

GRAPH 18-6

Reporting Share Buyback in the Balance Sheet

| Retirement—shares repurchased at cost | Treasury Stock |
|---------------------------------------|----------------------------------|
| Assets | Assets |
| Retained earnings | Retained earnings |
| Paid-in capital—share repurchase | Paid-in capital—share repurchase |
| Total | Total |

| | (\$ in millions) | |
|---|------------------|----------------|
| | Shares Retired | Treasury Stock |
| Shareholders' Equity | | |
| Paid-in capital | | |
| Common stock—100 million shares at \$10 par | \$ 1,000 | \$ 1,000 |
| Paid-in capital—excess of par | 800 | 800 |
| Paid-in capital—acquired shares | | 2 |
| Retained earnings | 1,990 | 2,000 |
| Less: Treasury stock—1 million shares at \$10 | | 10 |
| Total shareholders' equity | \$2,890 | \$2,890 |

RESALE OF SHARES

After shares are initially retired and a subsequent sale of shares, a company the sale of new unissued shares and is accounted for accordingly. This is demonstrated in the first column of Illustration 18-6.

The resale of treasury shares is viewed as a continuation of the single transaction by which the treasury shares were repurchased. The effect of the single transaction is not changing treasury stock and reselling it for more than cost (Case 2 of Illustration 18-6) or Case A of Illustration 18-6) is to increase both cash and shareholders' equity by \$1 million. The effect of the single transaction of not buying treasury stock and reselling it at a loss (Case 2 of Illustration 18-6) and Case B of Illustration 18-6) is to decrease both cash and shareholders' equity by \$1 million.

ILLUSTRATION 18-6

Comparison of Share Retirement and Treasury Stock Accounting—Subsequent Sale of Shares

| Retirement—shares repurchased at cost | Treasury Stock |
|---------------------------------------|----------------------------------|
| Assets | Assets |
| Retained earnings | Retained earnings |
| Paid-in capital—share repurchase | Paid-in capital—share repurchase |
| Total | Total |

American Vermiculite sold 1 million shares after reacquiring shares at \$10 per share (Case 2 in Illustration 18-5).

| Retirement | | Treasury Stock | |
|--|-------|---|----|
| Sold 1 million shares | | | |
| Case A: Shares sold at \$14 per share | | | |
| Cash | To | Cash | To |
| Common stock—100 million shares at \$10 par | 1,000 | Treasury stock—1 million shares at cost | 10 |
| Paid-in capital—excess of par | 800 | Paid-in capital—share repurchase | 2 |
| OR | | | |
| Case B: Shares sold at \$10 per share | | | |
| Cash | To | Cash | To |
| Common stock—100 million shares at \$10 par | 1,000 | Retained earnings—1 million shares | 10 |
| Paid-in capital—excess of par | 800 | Paid-in capital—share repurchase | 2 |
| | | Treasury stock (cost) | 10 |

Illustration 18-6: \$1 million repurchase of shares

Note that retained earnings may be debited in a treasury stock transaction, but not credited. Also notice that transactions involving treasury stock have no impact on the income statement. This follows the reasoning discussed earlier that a corporation's buying and selling of its own shares are transactions between the corporation and its officers and not part of its earnings process.

ADDITIONAL CONSIDERATION

Treasury Shares Acquired at Different Costs

As with the treasury stock account always is credited with the cost of the issued shares (\$1 million in Illustration 18-5). When shares are sold, if treasury stock on hand has been purchased at different per share prices, the cost of the shares sold must be determined using a cost flow assumption: FIFO, LIFO, or weighted average—similar to determining the cost of goods sold when inventory items are acquired at different unit costs.

The average cost of the treasury stock sold is determined by dividing the total cost of the shares by the number of shares sold.

CONCEPT REVIEW EXERCISE

Situation: The shareholders' equity section of the balance sheet of National Foods, Inc., included the following accounts at December 31, 2005.

TREASURY STOCK

| Shareholders' Equity | \$ in millions |
|---|----------------|
| Paid-in capital: | |
| Retained stock, 1 million shares at \$1 per | 5 |
| common stock, 122 million shares at \$1 par | 122 |
| Paid-in capital—excess of par, preferred | 479 |
| Paid-in capital—excess of par, common | 854 |
| Less: Receivable from share purchase contract | 220 |
| Retained earnings: | 268 |
| Total shareholders' equity: | <u>\$4,054</u> |

Required

- National Foods reacquired common shares during 2006 and sold shares in two separate transactions later that year. Prepare the entries for both the purchase and subsequent sale of shares during 2006 assuming that the shares were (a) retired and (b) considered to be treasury stock.
 - National Foods purchased 6 million shares at \$10 per share.
 - National Foods sold 2 million shares at \$12 per share.
 - National Foods sold 2 million shares at \$7 per share.
- Prepare the shareholders' equity section of National Foods' balance sheet at December 31, 2006, assuming the shares were both (a) retired and (b) viewed as treasury stock. Net income for 2006 was \$400 million, and preferred shareholders were paid \$1 million cash dividends.
- National Foods reacquired common shares during 2006 and sold shares in two separate transactions later that year. Prepare the entries for both the purchase and subsequent sale of shares during 2006 assuming that the shares were (a) retired and (b) considered to be treasury stock.
 - National Foods purchased 6 million shares at \$10 per share.

SOLUTION

| Retirement (\$ in millions) | | Treasury Stock (\$ in millions) | |
|---------------------------------|-----------|---------------------------------|----|
| Common stock (6 million shares) | 60 | Treasury stock | |
| Paid-in capital—excess of par | | (6 million shares × \$10) | 60 |
| (6 million shares × \$1) | 6 | Cash | 60 |
| Retained earnings (in balance) | 4 | | |
| Cash | 60 | | |
| Total | 66 | | |

b. National Foods sold 2 million shares at \$ 2 per share: (\$ in millions)

| | | | |
|--|----|---|----|
| Cash | 24 | Cash | 24 |
| Common stock
(2 million shares × \$1) | 2 | Treasury stock
(2 million shares × \$10) | 20 |
| Paid-in capital—excess of par | 22 | Paid-in capital—
acquired shares | 4 |

c. National Foods ~~sold~~ 2 million shares at \$7 per share: (\$ in millions)

| | | | |
|--|----|---|----|
| Cash | 14 | Cash | 14 |
| Preferred stock | | Paid-in capital—
acquired shares | 4 |
| Common stock
(2 million shares × \$5 par) | 2 | Retained earnings
(1 million ×) | 2 |
| Paid-in capital—excess of par | 12 | Treasury stock
(2 million shares × \$10) | 20 |

2. Prepare the shareholders' equity section of National Foods' balance sheet at December 31, 2006, assuming the shares were both (a) retired and (b) viewed as treasury stock.

NATIONAL FOODS, INC.
Balance Sheet
(Shareholders' Equity Section)
At December 31, 2006

(\$ in millions)

| | Shares Retired | Treasury Stock |
|---|----------------|----------------|
| Shareholders' Equity | | |
| Preferred stock: 11 million shares at \$1 per share | \$ 11 | \$ 0 |
| Common stock: 122 million shares, \$5 par | 610 | 610 |
| Paid-in capital—excess of par—preferred | 479 | 479 |
| Paid-in capital—excess of par—common | 846* | 854 |
| Loss Recognized from share purchase contract | (220) | (220) |
| Retained earnings | 3,235* | 3,243 |
| Treasury stock, at cost: 2 million common shares | | (20) |
| Total shareholders' equity | \$4,411 | \$4,471 |

* 2006
2005
2004

Note: This situation is addressed in the next Concept Review Exercise on page 922.

PART C RETAINED EARNINGS

Characteristics of Retained Earnings

- 106 In the previous section we examined *invested capital*. Now we consider *earned capital*, that is, retained earnings. In general, retained earnings represents a corporation's accumulated undistributed net income (or net loss). A more descriptive title used by some companies is *retained earnings*. A credit balance in this account indicates a dollar amount of assets previously earned by the firm but not distributed as dividends to shareholders. We refer to a debit balance in retained earnings as a *deficit*.

You saw in the previous section that the buyback of shares (as well as the resale of treasury shares in some cases) can decrease retained earnings. We examine the effect on retained earnings of dividends and stock splits in this section.

Dividends

Shareholders' total investments in a corporation are represented by amounts reported as paid-in capital. One way a corporation provides a return to its shareholders on their investments is to pay them a dividend, typically cash.¹⁰

Dividends are distributions of assets the company has earned on behalf of its shareholders. If dividends are paid that exceed the amount of assets earned by the company, then management is, in effect, returning to shareholders a portion of their investments, rather than providing them a return on that investment. So most companies view retained earnings as the amount available for dividends.

LIQUIDATING DIVIDEND

In unusual instances in which a dividend exceeds the balance in retained earnings, the excess is referred to as a liquidating dividend because some of the invested capital is being liquidated. This might occur when a corporation is being dissolved and assets (not subject to a superior claim by creditors) are distributed to shareholders. Any portion of a dividend not representing a distribution of earnings should be debited to additional paid-in capital rather than retained earnings.

LO7



Any dividend not representing a distribution of earnings should be debited to additional paid-in capital.

RETAINED EARNINGS RESTRICTIONS

Sometimes the amount available for dividends purposely is reduced by management. A restriction of retained earnings designates a portion of the balance in retained earnings as being unavailable for dividends. A company might restrict retained earnings to indicate management's intention to withhold for some specific purpose the assets represented by that portion of the retained earnings balance. For example, management might anticipate the need for a specific amount of assets in upcoming years to repay a maturing debt, to cover a contingent loss, or to finance expansion of the facilities. Be sure to understand that the restriction itself does not set aside cash for the designated event but merely communicates management's intention not to declare the stated amount as a dividend.

A restriction of retained earnings normally is indicated by a disclosure note in the financial statements. Although instances are rare, a formal journal entry may be used to reclassify a portion of retained earnings to an "appropriated" retained earnings account.

A restriction of retained earnings is indicated by a disclosure note in the financial statements. Management might anticipate the need for a specific amount of assets in upcoming years to repay a maturing debt, to cover a contingent loss, or to finance expansion of the facilities.

No formal journal entry is required to reclassify a portion of retained earnings to an "appropriated" retained earnings account.

Example
A company's board of directors declared regular quarterly dividends of \$0.28 per share. The dividend is paid on March 1, 2025, to shareholders who own shares as of February 1, 2025.

CASH DIVIDENDS

You learned in Chapter 4 that paying interest to creditors is a contractual obligation. No such legal obligation exists for paying dividends to shareholders. A liability is not recorded until a company's board of directors votes to declare a dividend. In most large corporations, management typically try to maintain a stable dividend pattern over time.

When directors declare a cash dividend, we reduce retained earnings and record a liability. Before the payment actually can be made, a listing must be assembled of shareholders entitled to receive the dividend. A specific date is stated as to when the declaration will be made of the recipients of the dividend. This date is called the date of record. Registered owners of shares of stock on this date are entitled to receive the dividend—even if they sell those shares prior to the actual cash payment. To be a

FINANCIAL REPORTING CASE

Q3 p. 893

The name of an investor who has sold shares before the date of record is not eligible to receive the dividend. The name of an investor who has sold shares after the date of record is eligible to receive the dividend.

| Account | Debit | Credit | Account | Debit | Credit |
|-------------------|---------|---------|-------------------|---------|---------|
| Retained Earnings | 100,000 | | Dividends Payable | | 100,000 |
| Dividends Payable | | 100,000 | Retained Earnings | 100,000 | |
| Retained Earnings | 100,000 | | Dividends Payable | | 100,000 |
| Dividends Payable | | 100,000 | Retained Earnings | 100,000 | |
| Retained Earnings | 100,000 | | Dividends Payable | | 100,000 |
| Dividends Payable | | 100,000 | Retained Earnings | 100,000 | |
| Retained Earnings | 100,000 | | Dividends Payable | | 100,000 |
| Dividends Payable | | 100,000 | Retained Earnings | 100,000 | |
| Retained Earnings | 100,000 | | Dividends Payable | | 100,000 |
| Dividends Payable | | 100,000 | Retained Earnings | 100,000 | |

registered owner of shares on the date of record, an investor must purchase the shares before the ex-dividend date. This date usually is two business days before the date of record. Shares purchased on or after that date are purchased ex dividend—without the right to receive the declared dividend. As a result, the market price of a share typically will decline by the amount of the dividend, other things being equal, on the ex-dividend date. Consider Illustration 18-7.

ILLUSTRATION 18-7 Cash Dividends

On the declaration date, retained earnings are charged down and a liability is created.

Registered owners of shares on the date of record are entitled to receive the dividend.

On June 1, the board of directors of Cash Industries declared a cash dividend of \$2 per share on its 100 million shares, payable to shareholders of record June 15, to be paid July 1.

| | | \$ in millions |
|--|-----|----------------|
| June 1—Declaration Date | | |
| Retained earnings | 200 | |
| Cash dividends payable—100 million shares at \$2/share | | 200 |
| June 15—Ex-Dividend Date | | |
| No entry | | |
| June 15—Date of Record | | |
| No entry | | |
| July 1—Payment Date | | |
| Cash dividends payable | 200 | |
| Cash | | 200 |

A sufficient balance in retained earnings permits a dividend to be declared. Remember, though, that retained earnings is a shareholders' equity account representing a dollar claim on assets in general, but not on any specific asset in particular. Sufficient retained earnings does not assure sufficient cash to make payment. These are two separate accounts having no necessary connection with one another. When a dividend is paid from retained earnings, this simply means that sufficient assets previously have been earned to pay the dividend without returning invested assets to shareholders.

PROPERTY DIVIDENDS

Because cash is the asset most easily divided and distributed to shareholders, most corporate dividends are cash dividends. In concept, though, any asset can be distributed to shareholders as a dividend. When a noncash asset is distributed, it is referred to as a property dividend (often called a *dividend in kind*).

In 2004, MobilePro Corp. declared to its shareholders a property dividend in the form of STI stock that MobilePro was holding as an investment. Securities held as investments are the assets most often distributed in a property dividend due to the relative ease in dividing these assets among shareholders and determining their fair market values.

A property dividend should be recorded at the fair market value of the assets to be distributed. This may require revaluing the asset to fair market value prior to recording the dividend. If so, a gain or loss is recognized for the difference between book value and fair market value. This is demonstrated in Illustration 18-8 on the next page.

The fair market value of an asset to be distributed is the amount recorded for a property dividend.

Stock Dividends and Splits

STOCK DIVIDENDS

- **LO 2** A stock dividend is the distribution of additional shares of stock to current shareholders of the corporation. Be sure to note the contrast between a stock dividend and either a cash or property dividend. A stock dividend involves neither the assets nor the withdrawal of funds. Also, because each shareholder receives the same percentage increase in shares, shareholders' proportional interest in (percentage ownership of) the firm remains unchanged.

In October, the board of directors of Kraft Industries declares a property dividend of million shares of Bosman Corporation's preferred stock (in a 10% premium over its \$5 par value) as an investment. Book value \$5 million. The investment shares have a fair market value of \$5 per share. The dividend will provide for shareholders a 10% premium over the \$5 par value to be distributed.

October 1--Declaration Date

සහතිකය: නිල වශයෙන් පරීක්ෂණය කළ බවට සහතික කර ඇත.

Retained earnings 7 m for shares of \$5 per share
Minority dividends payable

October 18—Date of Record

୪୦ ଟଙ୍କା

[illegible]

§ 100.11.1.1

ILLUSTRATION 18-8
Property Dividends

The new allocation accounting treatment of a stock dividend requires that shareholders' equity items be reclassified by reducing one or more shareholders' equity accounts and simultaneously increasing one or more paid-in capital accounts. The amount reclassified depends on the size of the stock dividend. For a small stock dividend, typically less than 25%, the fair market value of the additional shares distributed is transferred from retained earnings to paid-in capital as demonstrated in Illustration 8-9.¹⁰

Crest declares and distributes a 10% common stock dividend million shares; when the market value is the \$.01 common stock is \$ 4 per share.

Pataient-ils des... millions de dollars et \$12 par chèque
 common stock millions shares at \$12 par share
 Pataient-ils... des millions de dollars.

Summing
10

10
C

ILLUSTRATION 11-9
Stock Dividend

ADDITIONAL CONSIDERATION

The only above is recorded on the declaration date. Since yet issued some circumstances would prefer to credit a suitable at this point instead of common stock in that case common stock dividends issuable is debited and common stock is increased; either way the \$10 million amount paid-in capital on a balance sheet prepared between the declaration and distribution of the shares.

Stock Market Reaction to Stock Distributions. As a cash shareholder owning 10 shares at the time of the 10% stock dividend, you would receive an additional share. Since each share worth \$12, would you benefit by \$12 when you receive the additional share from Craft? Of course not. If the value of each share were to remain \$12 when the 10 million new shares are

[illegible]

Statement 100, the market value of the corporation would grow by 33% (from \$100 million to \$133 million).

A corporation cannot increase its market value simply by distributing additional stock certificates. Because all shareholders receive the same percentage increase in their respective holdings, you and all other shareholders still would own the same percentage of the company as before the distribution. Accordingly, the per share value of your shares should decline from \$12 to \$10.91 so that your 10 shares would be worth \$109.10—precisely what your 10 shares were worth prior to the stock dividend. Any failure of the stock price to actually adjust in proportion to the additional shares issued probably would be due to information other than the distribution reaching shareholders at the same time.

Then, what justification is there for recording the additional shares at market value? In 1941 (and reaffirmed in 1953), accounting reformers felt that many shareholders are deceived by small stock dividends, believing they benefit by the market value of their additional shares.²⁰ Furthermore they erroneously felt that these individual beliefs are reflected in the stock market by per share prices that remain unchanged by stock dividends. Consequently, their prescribed accounting treatment is to reduce retained earnings by the same amount as if cash dividends were paid equal to the market value of the shares issued.

This obsolete reasoning is inconsistent with our earlier conclusion that the market value per share will decline in approximately proportion to the increase in the number of shares distributed. Our intuitive conclusion is supported also by formal research.²¹

Besides being based on fallacious reasoning, accounting for stock dividends by debiting reclassifying "earned" capital as "invested" capital conflicts with the reporting objective: reporting shareholders' equity by source. Despite these limitations, this outdated accounting standard still applies.

Reasons for Stock Dividends. Some might feel the corporation is just distributing a commodity to its shareholders. In stock dividends, why do companies declare them?²² Occasionally a company tries to give shareholders the illusion that they are receiving a real dividend.

Another reason is merely to enable the corporation to take advantage of the accepted accounting practice of capitalizing retained earnings. Specifically, a company might want to lower its existing balance in retained earnings—otherwise available for cash dividends—so it can reinvest the earned assets represented by that balance without carrying a large credit in retained earnings.

STOCK SPLITS

A frequent reason for issuing a stock dividend is actually to induce the per share market value to fall. For example, a company declares a 100% stock dividend of 1 million shares if a common stock with a current market price of \$12 is being sold. If the company then sells each of the 1 million shares at a value of \$6, its total value for cash dividends is not that much less than what it would have been if the stock was determined to be selling at \$12 after the 1 million share dividend.

ADDITIONAL CONSIDERATION

No cash dividends are paid on treasury shares. Usually stock dividends aren't paid on treasury shares either. Treasury shares are essentially equivalent to shares that have been issued in a similar manner. Although they are excluded use in the calculation of shares with less reason for the treasury shares to participate in a stock dividend. For instance, if the treasury shares have been specifically designated for issuance to employees in a stock option plan or stock repurchase plan it would be appropriate to adjust the number of shares by the stock distribution.

FINANCIAL
REPORTING CASE

Case 10-1

| | Before Dividend | After Dividend | Effect on Retained Earnings | Effect on Market Value of Equity | Effect on Cash Flow |
|-------------------|-----------------|----------------|-----------------------------|----------------------------------|---------------------|
| 1. Cash | 100 | 100 | 0 | 0 | 0 |
| 2. Common Stock | 100 | 200 | 0 | 0 | 0 |
| 3. Treasury Stock | 0 | 0 | 0 | 0 | 0 |
| 4. Total Equity | 100 | 200 | 0 | 0 | 0 |

GRAPHIC 18-7

Stock Split
Disclosure—Synthetic
Corporation

Note 8—Stock Transactions (in part)

On June 1, 2014, the Board of Directors approved a two-for-one stock split to be effective as of July 1, 2014. The stock split will result in the issuance of 100 million shares of common stock at a price of \$10 per share, which will be equal to the market value of the shares outstanding on the date of the split. The stock split will not affect the total value of the company's equity.

ADDITIONAL CONSIDERATION

A company choosing to capitalize earnings when recording a stock split effect is the form of a stock dividend. It is not to capitalize an amount other than par value. Accounting guidelines are vague in this regard, stating only that legal amounts are minimum requirements and do not prevent the capitalization of a larger amount per share.

Source: Financial Accounting Standards Board, Accounting Research Bulletin No. 4, "The Accounting Treatment of Stock Splits," 1936.

Reverse Stock Split. A reverse stock split occurs when a company decreases, rather than increases, its outstanding shares. After a 1-for-4 reverse stock split, for example, 1 million shares, \$4 per per share, would become 250,000 shares, \$16 per per share. No journal entry is necessary. Of course the market price per share theoretically would quadruple, which usually is the motivation for declaring a reverse stock split. Companies that reverse split their shares frequently are struggling companies trying to accomplish with the stock what the market has been unwilling to do—increase the stock price.

Fractional Shares. Typically, a stock dividend or stock split results in some shareholders being entitled to fractions of whole shares. For example, if a company declares a stock dividend or equivalently a 5-for-4 stock split, a shareholder owning 16 shares would be entitled to 20 shares. Another shareholder with 15 shares would be entitled to 18.75 shares.

Cash payments usually are made to shareholders for fractional shares. In the situation described above, for instance, if the market price at declaration is \$12 per share, the shareholder with 15 shares would receive 3 additional shares and \$9 in cash: $(\$12 \times \frac{3}{4})$.

Cash payments usually are made when shareholders are entitled to fractions of whole shares.



DECISION MAKERS' PERSPECTIVE

Profitability is the key to a company's long-run survival. A summary measure of profitability, often used by investors and potential investors, particularly common shareholders, is the return on shareholders' equity. This ratio measures the ability of company management to generate net income from the resources that owners provide. The ratio is computed by dividing net income by average shareholders' equity. A variation of this ratio often is used when a company has both preferred and common stock outstanding. The return to common shareholders' equity is calculated by subtracting dividends to preferred shareholders from the numerator and using average common shareholders' equity as the denominator. The resulting ratio focuses on the profits generated on the assets provided by common shareholders.

Although the ratio is useful when evaluating the effectiveness of management in employing resources provided by owners, analysts must be careful not to view it in isolation or without considering how the ratio is derived. Keep in mind that shareholders' equity is a measure of the book value of equity, equivalent to the book value of net assets. Book value thus quickly becomes out of line with market value. An asset's book value usually equals its market value on the date it's purchased, but the two are not necessarily the same after that. Equivalently, the market value of a share of stock (or of total shareholders' equity) usually

different from its book value. As a result, to supplement the return on shareholders' equity ratio, analysts often relate earnings to the market value of the company by computing the earnings-price ratio. There also is a problem with earnings per share as a measure of the market price per share. For example, consider the differences between the book value of a stock and the market price of a stock, aside from the following differences in a financial report of a S&P 500 stock: Industries, at 1996 and 2006.

| (\$ in 000s except per share amounts) | 2006 | 2005 |
|---------------------------------------|----------|----------|
| Sales | \$ 5,114 | \$ 5,114 |
| Net income | \$ 114 | \$ 114 |
| Current assets | \$ 50 | \$ 720 |
| Property, plant, and equipment (net) | \$ 80 | \$ 850 |
| Total assets | \$ 130 | \$ 1,570 |
| Current liabilities | \$ 450 | \$ 530 |
| Long-term liabilities | \$ 40 | \$ 720 |
| Paid-in capital | \$ 210 | \$ 210 |
| Retained earnings | \$ 310 | \$ 310 |
| Liabilities and shareholders' equity | \$ 1,300 | \$ 1,560 |
| Shares outstanding | 50,000 | 50,000 |
| Stock price (average) | \$ 25.00 | \$ 24.50 |

The 2006 return on shareholders' equity is computed by dividing net income by average shareholders' equity:

$$\$125 \div [(\$560 + \$530)/2] = 23\%$$

The earnings-price ratio is the earnings per share divided by the market price per share:

$$\begin{aligned}\text{Earnings per share (2006)} &= \$125 \div 50 = \$2.50 \\ \text{Earnings-price ratio} &= \$2.50 \div \$24.50 = 10.2\%\end{aligned}$$

Obviously, the return on the market value of equity is much lower than on the book value of equity. This points out the importance of looking at more than a single ratio when making decisions. While 23% may seem like a desirable return, 10.2% is not nearly so attractive. Companies often emphasize the return on shareholders' equity in their annual reports. Alert investors should not accept this measure of achievement at face value. For some companies this is a meaningful measure of performance, but for others, the market-based ratio means more, particularly for a mature firm whose book value and market value are more divergent.

Decisions managers make with regard to shareholders' equity transactions can significantly impact the return to shareholders. For example, when a company buys back shares of its own stock, the return on shareholders' equity goes up. Net income is divided by a smaller amount of shareholders' equity. On the other hand, the share buyback uses assets, reducing the resources available to earn net income in the future. So, managers as well as outside analysts must carefully consider the decision to reacquire shares in light of the current economic environment, the firm's investment opportunities, and cost of capital to decide whether such a transaction is in the long-term best interests of owners.

The decision to pay dividends requires similar considerations. When earnings are high, do shareholders better off receiving substantial cash dividends or having management reinvest these funds to finance future growth (and future dividends)? The answer, of course, depends on the particular circumstances involved. Dividend decisions should reflect managerial synergy concerning the mix of internal versus external financing, alternative investment opportunities, and industry conditions. High dividends often are found in mature industries and low dividends in growth industries. ■

ETHICAL DILEMMA

Interworld Distributions has paid quarterly cash dividends since 1975. The dividends have steadily increased from \$.25 per share to the latest dividend declaration of \$.300 per share. The board of directors is eager to continue this trend despite the fact that revenues fell significantly during recent months as a result of worsening economic conditions and increased competition. The company founder and member of the board proposes a solution. He suggests a 50% stock dividend in lieu of a cash dividend to be accompanied by the following press announcement:

"In lieu of our regular \$.300 per share cash dividend, Interworld will distribute a 50% stock dividend on its common shares, currently trading at \$40 per share. Changing the form of the dividend will permit the Company to direct available cash resources to the modernization of physical facilities in preparation for competing in the 21st century."

What do you think?

CONCEPT REVIEW EXERCISE**CHANGES IN
RETAINED
EARNINGS**

Situation The shareholders' equity section of the balance sheet of National Foods Inc. included the following accounts at December 31, 2006:

| Shareholders' Equity | \$ millions |
|--|-------------|
| Paid-in capital: | |
| Preferred stock, 9.00%, 11 million shares at \$1 par | 5,111 |
| Common stock, 22 million shares at \$1 par | 22 |
| Paid-in capital—excess of par, preferred | 479 |
| Paid-in capital—excess of par, common | 854 |
| Less: Receivable from share purchase contract | (220) |
| Retained earnings: | 3,245 |
| Treasury stock, at cost, 2 million common shares | (20) |
| Total shareholders' equity | \$9,171 |

Required

- During 2007, several events and transactions affected the retained earnings of National Foods. Prepare the appropriate entries for these events.
 - On March 1, the board of directors declared a cash dividend of \$5 per share on its 20 million outstanding shares (22 million common shares less 2 million treasury shares), payable on April 1 to shareholders of record March 1.
 - On March 5, the board of directors declared a property dividend of 120 million shares of Krugger common stock that National Foods had purchased in February at a cost of \$1 million (book value \$900 million). The Krugger shares had a fair market value of \$8 per share and were distributed March 30 to shareholders of record March 15.
 - On April 13, a 3-for-2 stock split was declared and distributed. The stock split was effected in the form of a 50% stock dividend. The market value of the \$1 par common stock was \$20 per share.
 - On October 13, a 10% common stock dividend was declared and distributed when the market value of the \$1 par common stock was \$12 per share. Fractional share rights for 1 million equivalent whole shares were paid in cash.
 - On December 1, the board of directors declared the 4.00% cash dividend on the 11 million preferred shares, payable on December 23 to shareholders of record December 1.
- Prepare a statement of shareholders' equity for National Foods reporting the changes in shareholders' equity accounts for 2005, 2006, and 2007. Refer to the previous two Concept Reviews in this chapter for the 2005 and 2006 changes. For 2006, assume the shares were reacquired as treasury stock. Also, look back to the statement of shareholders' equity in Graph 18-4 on page 849 of the chapter for the statement. Assume that net income for 2007 was \$1.25 million.

1. During 2007, several events and transactions affected the retained earnings of Nabors Foods. Prepare the appropriate entries for these events.

- a. Cash dividend of \$1 per share on 120 million outstanding common shares (122 million - 2 million treasury shares) payable on April 3 as shareholders of record March 11. Note: Dividends were paid on treasury shares.

SOLUTION

| March 1—Declaration Date | (\$ in millions) | |
|--|------------------|-----|
| Retained earnings | 120 | |
| Cash dividends payable (120 million shares at \$1 share) | | 120 |
| March 11—Date of Record | | |
| None | | |
| April 3—Payment Date | | |
| Cash dividends payable | 120 | |
| Cash | | 120 |

The declaration of a cash dividend creates a liability to shareholders.

- b. Property dividend of 60 million shares of Kroger common stock.

| March 5—Declaration Date | (\$ in millions) | |
|---|------------------|-----|
| Investment in Kroger common stock | 60 | |
| Gain on appreciation of investment (\$960 - 900) | | 60 |
| Retained earnings (fair value of asset to be distributed) | 960 | |
| Property dividends payable | | 960 |

The property dividend must be written up to the \$960 million fair market value.

March 15—Date of Record
None

| March 30—Payment Date | | |
|-----------------------------------|-----|-----|
| Property dividends payable | 960 | |
| Investment in Kroger common stock | | 960 |

The liability is satisfied when the Kroger shares are distributed to shareholders.

- c. 3-for-2 stock spl. effected in the form of a 50% stock dividend.

| April 13 | (\$ in millions) | |
|---|------------------|----|
| Paid-in capital—excess of par | | 60 |
| Common stock (60 million shares at \$1 par per share) | | 60 |

The 50% stock dividend is recorded as follows:

- d. 10% common stock dividend—fractional share rights for 1 million equivalent whole shares.

| October 13 | (\$ in millions) | |
|---|------------------|-----|
| Retained earnings (10 million shares at \$12 per share) | 120 | |
| Common stock (12 million shares at \$1 par per share) | | 12 |
| Paid-in capital—excess of par | | |
| 12 million shares at \$11 per share above par | | 127 |
| Cash (1 million shares at \$12 market price per share) | | 12 |

The stock dividend is recorded as follows:

The \$12 per market price of the 1 million shares is capitalized in the stock dividend.

- e. 9.09% cash dividend on the 1 million preferred shares payable on December 23 to shareholders of record December 1.

| December 1—Declaration Date | (\$ in millions) | |
|--|------------------|---|
| Retained earnings | 1 | |
| Cash dividends payable (\$1 million par × 9.09%) | | 1 |
| December 11—Date of Record | | |
| None | | |

The 9.09% dividend is recorded as follows:

December 23: Payment Date

Cash dividends payable
Cash

1

- 2 Prepare a statement of shareholders' equity for National Foods reporting the change in shareholders' equity accounts for 2005, 2006, and 2007.

NATIONAL FOODS
Statement of Shareholders' Equity
For the Years Ended December 31, 2007, 2006, and 2005

\$ in millions

| | Preferred
Stock | Common
Stock | Additional
Paid-in
Capital | Available
from
Share
Purchase
Contract | Retained
Earnings | Treasury
Stock
(at cost) | Total
Share-
holders'
Equity |
|---|--------------------|-----------------|----------------------------------|--|----------------------|--------------------------------|---------------------------------------|
| 2005 | | | 456 | | 2,450 | | |
| Sale of preferred shares | 0 | | 430 | (220) | | | 210 |
| Issuance of common shares | | | 9 | | | | 9 |
| Issuance of common and
preferred shares | 1 | 1 | 88 | | | | 91 |
| Net income | | | | | 400 | | 400 |
| Cash dividends, preferred | | | | | (1) | | (1) |
| Balance at December 31, 2005 | 11 | 27 | 1,333 | (220) | 2,848 | | 4,000 |
| Purchase of treasury shares | | | | | | (80) | (80) |
| Sale of treasury shares | | | 4 | | | 20 | 24 |
| Sale of treasury shares | | | 162 | | (25) | 20 | 157 |
| Net income | | | | | 400 | | 400 |
| Cash dividends, preferred | | | | | (1) | | (1) |
| Balance at December 31, 2006 | 11 | 22 | 1,333 | (220) | 3,245 | 20 | 4,400 |
| Cash dividends, common | | | | | (120) | | (120) |
| Property dividends, common | | | | | (960) | | (960) |
| 2-for-2 split effected in the
form of a stock dividend | | 40 | (40) | | | | |
| 0% stock dividend | | 17 | 187 | | (216) | | 168 |
| Preferred dividends | | | | | 225 | | 225 |
| Net income | | | | | 225 | | 225 |
| Balance at December 31, 2007 | 11 | 99 | 1,460 | (220) | | | 2,350 |

These are the
Concept Review
Exercise—Expansion of
Corporate Capital

These are the
Concept Review
Exercise—Expansion of
Corporate Capital

These are the
Concept Review
Exercise—Expansion of
Corporate Capital



FINANCIAL REPORTING CASE SOLUTION

1. Do you think the stock price increase is related to Temple-Inland's share repurchase plan? (p. 900) The stock price increase probably is related to Temple-Inland's buyback plan. The marketplace realizes that decreasing the supply of shares supports the price of remaining shares. However, the repurchase of shares is not necessarily the best use of a company's cash. Whether it is in the shareholders' best interests depends on what other opportunities the company has for the cash available.
2. What are Temple-Inland's choices in accounting for the share repurchases? (p. 914) When a corporation reacquires its own shares, those shares assume the same status as authorized but unissued shares, just as if they never had been issued. However, for exactly the same transaction, companies can choose between two accounting alternatives: (a) formally retiring them or (b) accounting for the shares repurchased as treasury stock. In actuality, Temple-Inland uses alternative (b).
3. What effect does the quarterly cash dividend of 9¢ per share have on Temple-Inland's assets? Its liabilities? Its shareholders' equity? (p. 915) Each quarter, when Temple-Inland declares a cash dividend, retained earnings are reduced and a liability is recorded. It

liability is paid with cash on the payment date. So, the net effect is a decrease in Temple-Inland's assets and its shareholders' equity. The effect on liabilities is temporary.

4. What effect did the stock split have on Temple-Inland's assets? its liabilities? its shareholders' equity? **ANSWER:** Conceptually, the proper accounting treatment of a stock split is to make no journal entry. However, since Temple-Inland refers to the stock distribution as a "stock split effected in the form of a stock dividend," a journal entry would increase the common stock account by the par value of the additional shares and would reduce paid-in capital—excess of par. This merely moves an amount from one part of shareholders' equity to another. Regardless of the accounting method, there is no change in Temple-Inland's assets, liabilities, or total shareholders' equity. ■

THE BOTTOM LINE

Shareholders' equity is the owners' residual interest in a corporation's assets. It arises primarily from (1) amounts invested by shareholders and (2) amounts earned by the corporation on behalf of its shareholders. These are reported as (1) paid-in capital and (2) retained earnings. A statement of shareholders' equity reports the sources of the changes in individual shareholdings' equity accounts.

Comprehensive income encompasses all changes in equity except those caused by transactions with owners (like dividends and the sale or purchase of shares). It includes traditional net income as well as "other comprehensive income."

3. Shares sold by share purchase contract in existence are sold on credit. Shares sold for consideration other than cash (maybe services or a noncash asset) should be recorded at the fair market value of the shares or the noncash consideration, whichever seems more clearly evident.
4. When a corporation redeems previously issued shares, those shares resume the same status as authorized but unissued shares—just the same as if they had never been issued. Payments made to retire shares are viewed as a distribution of corporate assets to shareholders.
5. When reacquired shares are viewed as treasury stock, the cost of acquiring the shares is temporarily debited to the treasury stock account. Recording the effects on specific shareholders' equity accounts is delayed until later when the shares are resold.
6. Retained earnings represents, in general, a corporation's accumulated, undistributed or reinvested net income (or net loss). Distributions of certain assets are dividends.
7. Most corporate dividends are paid in cash. When a noncash asset is distributed, it is referred to as a property dividend. The fair market value of the assets to be distributed is the amount recorded for a property dividend.
8. A stock dividend is the distribution of additional shares of stock to current shareholders. For a small stock dividend (25% or less), the fair value of the additional shares distributed is transferred from retained earnings to paid-in capital. For a stock distribution of 25% or higher, the par value of the additional shares is reclassified within shareholders' equity if referred to as a stock split effected in the form of a stock dividend, but if referred to merely as a stock split, no journal entry is recorded. ■

QUAS REORGANIZATIONS

A firm undergoing financial difficulties, but with favorable future prospects, may use a quas reorganization to write down inflated asset values and eliminate an accumulated deficit (debt balance in retained earnings). To effect the reorganization, the following procedures are followed:

The firm's assets (and perhaps liabilities) are revalued (up or down) to reflect fair market values, with corresponding credits or debits to retained earnings. This process typically increases the deficit.

1. The deficit balance in retained earnings (deficit) is eliminated against additional paid-in capital. If additional paid-in capital is not sufficient to absorb the entire deficit, a reduction in capital stock may be necessary (with an appropriate restating of the par amount per share).

3. Retained earnings is dated. That is, disclosure is provided to indicate the date the deficit was incurred and when the new accumulation of earnings began.

The procedure is demonstrated in Illustration 18A-1. The shareholders approved the plan reorganization effective January 1, 2006. The plan was to be accomplished by a reduction in inventory by \$75 million, a reduction in property, plant, and equipment (net) of \$75 million, and appropriate adjustments to shareholders' equity.

ILLUSTRATION 18A-1 Quasi Reorganization

The Emerson Valve Company has enjoyed operating losses for several years. A newly elected board of directors voted to implement a quasi reorganization subject to shareholder approval. The balance sheet as of December 31, 2005, immediately prior to the reorganization is presented below.

| | (\$ in millions) |
|--|------------------|
| Assets | |
| Cash | \$ 75 |
| Receivables | 200 |
| Inventory | 375 |
| Property, plant, and equipment (net) | 400 |
| | <u>\$1,050</u> |
| Liabilities | <u>\$ 400</u> |
| Common stock (800 million shares at \$1 par) | 800 |
| Additional paid-in capital | 150 |
| Retained earnings (deficit) | (300) |
| | <u>\$1,050</u> |

When assets are revalued at their current market value, the deficit is eliminated.

The deficit of \$300 is 100% of the deficit. It is eliminated by the revaluation of assets to their current market value.

The remaining deficit is \$300. It is 100% of the deficit. It is eliminated by the revaluation of assets to their current market value.

| | (\$ in millions) |
|---|------------------|
| To Revalue Assets | |
| Retained earnings | 75 |
| Inventory | 75 |
| Retained earnings | 175 |
| Property, plant, and equipment | 175 |
| To Eliminate a Portion of the Deficit against Available Additional Paid-in Capital | |
| Additional paid-in capital | 50 |
| Retained earnings | 50 |
| To Eliminate the Remainder of the Deficit against Common Stock | |
| Common stock | 400 |
| Retained earnings | 400 |

The balance sheet immediately after the reorganization would include the following:

| | (\$ in millions) |
|--|------------------|
| Assets | |
| Cash | \$ 75 |
| Receivables | 200 |
| Inventory | 300 |
| Property, plant, and equipment (net) | 225 |
| | <u>\$800</u> |
| Liabilities | <u>\$400</u> |
| Common stock (800 million shares at \$.50 par) | 400 |
| Additional paid-in capital | 0 |
| Retained earnings (deficit) | 0 |
| | <u>\$800</u> |

Assets and liabilities reflect current values.

The assets are revalued at their current market value. The deficit is eliminated by the revaluation of assets to their current market value.

The assets are revalued at their current market value.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 18-1 Identify and briefly describe the two primary sources of shareholders' equity.
- Q 18-2 The balance sheet reports the balances of shareholders' equity accounts. What additional information is revealed by the statement of shareholders' equity?
- Q 18-3 What is comprehensive income? How does comprehensive income differ from net income? Where do both parties report it in a balance sheet?
- Q 18-4 Define the three common forms of business organization and the primary difference between the way they are accounted for.
- Q 18-5 Corporations offer the advantage of limited liability. Explain what is meant by that statement.
- Q 18-6 Distinguish between non-financial and for-profit corporations.
- Q 18-7 Distinguish between publicly held and privately or closely held corporations.
- Q 18-8 How does the Model Business Corporation Act affect the way corporations operate?
- Q 18-9 The owners of a corporation are its shareholders. If a corporation has only one class of shares, they typically are called common shares. Indicate the ownership rights held by a common shareholder, unless specifically withheld by agreement.
- Q 18-10 What is meant by a shareholder's preemptive right?
- Q 18-11 Terminology varies in the way companies differentiate among share types. But many corporations designate shares as common or preferred. What are the two special rights usually given to preferred shareholders?
- Q 18-12 Most preferred shares are noncumulative. Explain what this means.
- Q 18-13 The par value of shares historically indicated the per share value of shares and all shares were issued at that price. The concept has changed with time. Describe the meaning of par value as it has evolved to today.
- Q 18-14 When shares are sold by share purchase contract, shares ordinarily are issued in exchange for a promissory note from the subscriber and a receivable is recorded for the portion of the selling price not yet received. What is the net value reported if shares are sold?
- Q 18-15 At times, companies issue their shares for consideration other than cash. What is the measurement objective in this case?
- Q 18-16 Companies occasionally sell more than one security for a single price. How is the issue price allocated among the separate securities?
- Q 18-17 The costs of legal, professional, and accounting services necessary to effect the sale of shares are reflected in the share issue costs. How are these costs recorded? Compare this approach to the way debt issue costs are recorded.
- Q 18-18 When a corporation repurchases its own shares, those shares assume the same status as authorized but unissued shares, as if they never had been issued. Explain how this is reflected in the accounting records if the shares are eventually resold.
- Q 18-19 Discuss the conceptual basis for accounting for a share buyback as treasury stock.
- Q 18-20 The prescribed accounting treatment for stock dividends implicitly assumes that shareholders are divided by small stock dividends and benefit by the market value of their additional shares. Explain this statement. Is it correct?
- Q 18-21 Brandon Corporation declares a 2-for-1 stock split. What will be the effects of the split, and how should it be recorded?
- Q 18-22 What is a reverse stock split? What would be the effect of a reverse stock split on one million 10 par shares? How are dividends affected?
- Q 18-23 Suppose you own 50 shares of BSM common stock when the company declares a 4% stock dividend. What will one share be worth?
- Q 18-24 Based on Appendix 18-A, what reorganization is sometimes employed by a firm undergoing financial difficulties, but with favorable future prospects? What are two objectives of this procedure? Briefly describe the procedure used.

BRIEF EXERCISES

BE 8-1
Comprehensive income

• LO

Schaeffler Corporation reports \$40 million accumulated other comprehensive income in its balance sheet as a component of shareholders' equity. In a full disclosure note regarding comprehensive income, the company reveals net income of \$400 million and other comprehensive income of \$25 million. What was the balance of accumulated other comprehensive income in last year's balance sheet?

BE 8-2
Stock issued

• LO

Home Pharmaceuticals sold 1 million shares of its common stock to provide funds for research and development. If the shares are sold at a price above the stated value, record the entry to show the sale.

BE 8-3
Stock issued

• LO

Lawrence Corporation issued 20,000 shares of \$5 par common stock to the Michael Morgan Law Firm in satisfaction of the firm's bill for legal services. Assuming Morgan's bill for \$100,000 per year by and amount should Lawrence's paid-in capital—excess of par increase as a result of this transaction?

BE 8-4
Retirement of shares

• LO

Horton Industries shareholders equity included 60 million shares of \$1 par common stock and a balance in paid-in capital—excess of par of \$600 million. Assuming that Horton retires shares it reacquires (at their value to that of authorized but unissued shares), by what amount will Horton's total paid-in capital decline if it reacquires 2 million shares at \$8.50 per share?

BE 8-5
Retirement of shares

• LO

Agar Springs issued 35 million shares of its \$1 par common stock at \$15 per share several years ago. Last year, for the first time, Agar reacquired 5 million shares at \$14 per share. Assuming that Agar retires (at their value to that of authorized but unissued shares), by what amount will Agar's total paid-in capital decline if it now reacquires 1 million shares at \$13 per share?

BE 8-6
Treasury stock

• LO

The Jennings Company reacquired 2 million shares of \$20 per share as treasury stock and sold 1 million shares to its employees. If the company's treasury stock is sold at \$25 per share, by what amount will Jennings' retained earnings decline if it now sells the remaining 1 million treasury shares at \$27 per share?

BE 8-7
Treasury stock

• LO

A previous question: Cox Transport reacquired 1 million treasury shares at \$10 per share and sold 500,000 treasury shares at \$12 per share. By what amount will its paid-in capital—share premium on shares it now sells 1 million treasury shares at \$14 per share? And determine what is the weighted average cost of treasury shares?

BE 8-8
Treasury stock

• LO

Refer to the situation described in BE 8-7. By what amount will Cox's paid-in capital—share premium increase if it determines the cost of treasury shares by the FIFO method?

BE 8-9
Cash dividend

• LO

Following is a Microsoft press release:

In March 2005 Microsoft Corp. today announced that its Board of Directors declared a regular quarterly dividend of \$0.08 per share. The dividend is payable March 10, 2005 to shareholders of record on Feb. 17, 2005.

Prepare the journal entries Microsoft used to record the declaration and payment of the cash dividend on 1 billion shares.

BE 8-10
Property dividend

• LO

Lalor Mining and Storage, a family-owned corporation, declared a property dividend of 1,000 shares of CBE common stock that Lalor had purchased in February for \$37,000 as an investment. CBE's shares are market value of \$3.5 per share on the declaration date. Prepare the journal entries to record the property dividend on the declaration and payment dates.

BE 8-11
Stock dividend

• LO

On June 1, the board of directors of Slewert Inc. declared a 5% stock dividend on its 60 million common shares. In the distribution on July 1, the market price of Slewert common stock was \$25 per share. Prepare the journal entry to record the stock dividend.

BE 8-12
Stock split

• LO

Refer to the situation described in BE 8-11 but assume a 2-for-1 stock split instead of the 5% stock dividend. Prepare the journal entry to record the split. How many shares are to be effected in the form of a new dividend? What is the par per share after the split?

BE 8-13
Stock split

• LO

Refer to the situation described in BE 8-11 but assume a 3-for-1 stock split instead of the 5% stock dividend. Prepare the journal entry to record the split. How many shares are to be effected in the form of a new dividend? What is the par per share after the split?

EXERCISES

4.8 alternative exercise and problem sets available on the text website: www.mhhe.com/wapack14e

14-5 Comprehensive Income

• 10 min

The following is an excerpt from a disclosure note from the 2006 annual report of Kauffman Chemicals, Inc.

COMPREHENSIVE INCOME (LOSS)

The components of Comprehensive Income (Loss) for the year are as follows (in millions):

| Year Ended December 31 | 2006 | 2005 | 2004 |
|--|-------|-------|-------|
| Net income | \$256 | \$146 | \$194 |
| Other comprehensive income | | | |
| Change in net cash and cash equivalents | 34 | 21 | 23 |
| Change in net debt of \$2.2, \$14, and \$3, respectively | (2) | 1 | — |
| Total | \$288 | \$168 | \$217 |

Kauffman reports an accumulated other comprehensive income in its balance sheet as a component of stockholders' equity. Explain.

| | in millions | |
|--|-------------|---------|
| | 2006 | 2005 |
| Shareholders' equity | | |
| Common stock | 355 | 355 |
| Additional paid-in capital | 2,567 | 2,567 |
| Retained earnings | 6,561 | 5,988 |
| Accumulated other comprehensive income | 107 | 75 |
| Total shareholders' equity | \$10,190 | \$9,585 |

Required:

- What is comprehensive income and how does it differ from net income?
- How is comprehensive income reported in a balance sheet?
- Why is Kauffman's 2006 balance sheet amount different from the 2006 amount reported in the disclosure note? Explain.
- From the information provided, determine how Kauffman calculated the \$107 million accumulated other comprehensive income in 2006.

The following is a news story reported by Reuters.

WASHINGTON, Jan. 29 (Reuters)—Wright Medical Group, a maker of reconstructive implants for knees and hips, on Tuesday filed to sell 3 million shares of common stock.

In a filing with the U.S. Securities and Exchange Commission, it said it plans to use the proceeds from the offering for general corporate purposes, including capital, research and development, and acquisitions.

After the sale there will be about 20 million shares outstanding in the Arlington, Tennessee-based company, according to the SEC filing.

Wright shares closed at \$17.15 on Monday.

The common stock of Wright Medical Group has a par of \$1.00 per share.

Required:

Prepare the journal entry to record the sale of the shares assuming the price existing when the announcement was made and ignoring about stock costs.

During the first year of operations, Baker International, Inc., sold and issued 24 million of its common shares, \$1 par per share. During the first year, which ended December 31, 2006, net income was \$30 million and no dividends were paid.

2.4
An issuer for cash
Wright Medical Group

• 10 min

11
Issuance of shares,
zero purchase cost

• 10 min

Required

1. Prepare the journal entry to record the sale of the shares for cash at a price of \$20 per share.
2. Prepare the journal entry to record the sale of the shares if sold by share purchase contract for \$20 a share, with 50% of the selling price to be received after 4 months.
3. Show how shareholders' equity would be reported in Belton's balance sheet at December 31, 2006, assuming the shares were sold by share purchase contract.
4. Prepare the journal entry to record the collection of the receivable from the share purchase contract, during the second year of operations.
5. Show how shareholders' equity would be reported in Belton's balance sheet at December 31, 2007, assuming no additional changes in shareholders' equity other than 2007 net income of \$65 million.

E 18-4

Issuance of shares
with consideration

• LO1

During its first year of operations, Escent Data Links Corporation entered into the following transaction relating to shareholders' equity. The articles of incorporation authorized the issue of 8 million common shares, \$1 per par share, and 1 million preferred shares, \$50 per par share.

Required:

Prepare the appropriate journal entries to record each transaction.

- Feb. 2 Sold 2 million common shares, for \$9 per share
13 Issued 40,000 common shares to attorneys in exchange for legal services.
13 Sold 80,000 of its common shares and 4,000 preferred shares for \$945,000.
Nov. 15 Issued 380,000 of its common shares in exchange for equipment for which the cash price was known to be \$2,688,000.

E 18-5

Redeemable shares

• LO3

Williams Industries has outstanding 30 million common shares, 20 million Class A shares, and 10 million Class B shares. Williams has the right but not the obligation to repurchase the Class A shares if a change of ownership of the voting common shares causes J. P. Williams, founder and CEO, to have less than 50% ownership. Williams has the unconditional obligation to repurchase the Class B shares upon the death of Williams.

Required:

Which, if any, of the shares should be reported in Williams's balance sheet as liabilities? Explain.

E 18-6

Share issue costs
expense

• LO3

ICOT Industries issued 5 million of its \$5 par common shares for \$424 million on April 11. Legal, accounting, and accounting services necessary to effect the sale cost \$2 million.

Required:

1. Prepare the journal entry to record the issuance of the shares.
2. Explain how recording the share issue costs differs from the way debt issue costs are treated (discussed in Chapter 14).

E 18-7

Retirement of shares

• LO4

Borner Communications' articles of incorporation authorized the issuance of 130 million common shares. The transactions described below effected changes in Borner's outstanding shares. Prior to the transactions, Borner's shareholders' equity included the following:

| Shareholders' Equity | \$ in millions |
|---|----------------|
| Common stock, 100 million shares at \$1 par | \$100 |
| Paid-in capital—excess of par | 300 |
| Retained earnings | 210 |

Required:

Assuming that Borner Communications retire shares it reacquires, restore their cost to that of outstanding common shares, and the appropriate journal entry for each of the following transactions:

1. On January 1, 2006, Borner reacquired 10 million shares at \$50 per share.
2. On August 23, 2006, Borner reacquired 4 million shares at \$35 per share.
3. On July 29, 2007, Borner sold 3 million common shares at \$6 per share.

E 18-8

Retirement of shares

• LO4

In 2006, Portland Schindler Industries effected the transactions described below. In 2005, Portland had issued 70 million shares of its \$1 par common stock at \$34 per share.

Required:

Assuming that Portland retains shares it reacquires, record the appropriate journal entry for each of the following transactions:

1. On January 2, 2006, Portland reacquired 1 million shares at \$32.50 per share.
2. On March 3, 2006, Portland reacquired 1 million shares at \$36 per share.
3. On August 15, 2006, Portland sold 1 million shares at \$42 per share.
4. On December 5, 2006, Portland sold 2 million shares at \$36 per share.

18-9
Treasury stock

18-10

18-11
Treasury stock
Weighted average and
first-in, first-out

18-12

18-13
Reporting
Shareholders' equity
in the balance sheet

18-14

18-15
Treasury stock
Treasury stock to retired stock

18-16

In 2006, Western Transport Company entered into the treasury stock transactions described below. In 2004, Western Transport had issued 140 million shares of its \$1 par common stock at \$12 per share.

Required:

Prepare the appropriate journal entry for each of the following transactions:

- On January 23, 2006, Western Transport reacquired 11 million shares at \$20 per share.
- On September 3, 2006, Western Transport sold 10 million treasury shares at \$21 per share.
- On November 4, 2006, Western Transport sold 1 million treasury shares at \$18 per share.

As December 31, 2006, the balance sheet of Western Transport included the following shareholders' equity amounts:

| Shareholders' Equity | | (\$ in millions) | |
|-------------------------------|-------------------------------|------------------|--|
| Common stock, \$1 par | 140 million shares at \$1 par | \$ 140 | |
| Paid-in capital—excess of par | | 300 | |
| Retained earnings | | 410 | |

Required:

Assuming that Western Transport views its share buybacks as treasury stock, record the appropriate journal entry for each of the following transactions:

- On February 12, 2006, Western Transport reacquired 10 million common shares at \$18 per share.
- On June 9, 2007, Western Transport reacquired 1 million common shares at \$18 per share.
- On May 25, 2008, Western Transport sold 2 million treasury shares at \$19 per share, determining that as the weighted average cost of treasury stock.
- In the previous transaction, assuming Western Transport determines the cost of treasury shares by the FIFO method.

On two previous occasions, the management of Western Transport Company, Inc. repurchased some of its own common shares. Between buyback transactions, the corporation issued common shares under its management incentive plan. Shown below is shareholders' equity following these share repurchases, as reported by two different methods of accounting for repurchased shares.

| Shareholders' Equity | (\$ in millions) | |
|----------------------------|------------------|----------|
| | Method A | Method B |
| Paid-in capital: | | |
| Preferred stock, \$10 par | \$ 150 | \$ 150 |
| Common stock, \$1 par | 200 | 197 |
| Additional paid-in capital | 1,204 | 1,201 |
| Retained earnings | 2,994 | 2,979 |
| Less: Treasury stock | (21) | |
| Total shareholders' equity | \$4,527 | \$4,527 |

Required:

- Understand the presentation which method of accounting for repurchased shares is preferred by each of the two companies.
- Explain why presentation formats are different and why some account balances are different for the two methods.

In keeping with a commitment to improve returns to its stockholders, UML Corporation decides in 2009 to eliminate accounting for repurchased common stock. Instead, shares repurchased will be treated as having been retired, reissuing the same as unissued shares. As part of the change, treasury shares held were reclassified as retired stock. As December 31, 2009, UML's balance sheet reported the following shareholders' equity:

| (\$ in millions) | |
|---|---------|
| Common stock, \$1 par | \$200 |
| Paid-in capital—excess of par | 800 |
| Retained earnings | 956 |
| Treasury stock (4 million shares at cost) | (25) |
| Total shareholders' equity | \$1,931 |

Required:

Identify the type of accounting change—change in accounting principle, change in accounting estimate, or change in accounting policy—that represents, and prepare the journal entry to effect the reclassification of treasury shares as retired shares.

E 18-13

Multiple-choice CPA exam: paid-in capital

• LO3-105

The following questions dealing with paid-in capital are adapted from prior CPA examinations. Determine the response that best completes the statements or questions.

1. Ego Co. issued 1,000 shares of its \$5 par common stock to Howe as compensation for 1,000 hours legal services performed. Ego usually bills \$100 per hour for legal services. On the date of issue, the stock was trading on a public exchange at \$40 per share. By what amount should the additional paid-in capital account increase as a result of this transaction?
 - a. \$5,000
 - b. \$4,000
 - c. \$755,000
 - d. \$60,000
2. If a corporation sells some of its treasury stock at a price that exceeds its cost, this excess should be
 - a. Reported as a gain in the income statement.
 - b. Treated as a reduction in the carrying amount.
 - c. Credited to additional paid-in capital.
 - d. Credited to retained earnings.

E 18-14

Transactions affecting retained earnings

• LO6-107

Shown below in T-account format are the changes affecting the retained earnings of Brenner-Jude Corporation during 2006. At January 1, 2006, the corporation had outstanding 105 million common shares, \$1 per share.

| Retained Earnings (\$ in millions) | |
|--|----------------------------|
| | 90 Beginning balance |
| Retirement of 5 million common shares for \$22 million | 2 |
| | 88 Net income for the year |
| Declaration and payment of a \$.33 per share cash dividend | 33 |
| Declaration and distribution of a 4% stock dividend | 20 |
| | 123 Ending balance |

Required

1. From the information provided by the account changes you should be able to recreate the transaction that affected Brenner-Jude's retained earnings during 2006. Prepare the journal entries that Brenner-Jude must have reported during the year for these transactions.
2. Prepare a statement of retained earnings for Brenner-Jude for the year ended 2006.

E 18-15

Effect of cumulative, nonparticipating preferred stock on dividends—3 years

• LO7

The shareholders' equity of WBL Industries includes the items shown below. The board of directors of WBL declared cash dividends of \$8 million, \$20 million, and \$50 million in its first three years of operation: 2006, 2007, and 2008, respectively.

| | (\$ in millions) |
|--|------------------|
| Common stock | \$100 |
| Paid-in capital—excess of par, common | 940 |
| Preferred stock—8% | 200 |
| Paid-in capital—excess of par, preferred | 55 |

Required

Determine the amount of dividends to be paid to preferred and common shareholders in each of the three years, assuming that the preferred stock is cumulative and nonparticipating.

| | Preferred | Common |
|------|-----------|--------|
| 2006 | | |
| 2007 | | |
| 2008 | | |

E 18-16

Stock dividend

• LO8

The shareholders' equity of Core Technologies Company on June 30, 2005, included the following:

| | |
|---|--------------|
| Common stock, \$1 per share; authorized, 8 million shares; issued and outstanding, 3 million shares | \$ 3,000,000 |
| Paid-in capital—excess of par | 12,000,000 |
| Retained earnings | 14,000,000 |

On April 1, 2006, the board of directors of Core Technologies declared a 7% stock dividend on its common shares, to be distributed on June 1. The market price of Core Technologies' common stock was \$30 on April 1, 2006, and \$40 on June 1, 2006.

E 18-17
stock split, Horner
Financial Corporation

• 100

Known: Horner

Prepare the journal entry to record the distribution of the stock dividend on the declaration date.

Horner Financial Corporation is the parent company of Horner Bank. The company's 2005 stock split was announced in the following Business Week

LOS ANGELES BUSINESS WIRE Jan. 20, 2006—Horner Financial Corporation (NASDAQ), announced that the Board of Directors has approved a two-for-one stock split, to be effected in the form of a 100 percent stock dividend. Horner Financial Corporation stockholders of record as the close of business on January 3, 2006 will receive one additional share of common stock for every share of common stock then held. Distribution of additional shares as a result of the split is expected to occur on or about February 9, 2006.

At the time of the stock split, 24.9 million shares of common stock \$2.00 per share were outstanding. Required:

1. Prepare the journal entry, if any, that Horner recorded at the time of the stock split.
2. What is the probable motivation for declaring the 2-for-1 stock split to be effected by a dividend payable in shares of common stock?
3. If Horner's stock price had been \$30 at the time of the split, what would its approximate value after the split either thing equal?

E 18-18
split in fractional
share rights

• 70

Angus McDonald Company's balance sheet included the following shareholders' equity accounts at December 31, 2005:

| | (\$ in millions) |
|---|------------------|
| Paid-in capital: | |
| Common stock, 900 million shares at \$1 per | \$ 900 |
| Paid-in capital—excess of par | 15,800 |
| Retained earnings | 14,820 |
| Total shareholders' equity | <u>\$31,520</u> |

On March 15, 2006, a 4% common stock dividend was declared and distributed. The market value of the common stock was \$20 per share. Fractional share rights represented 2 million equivalent whole shares. Cash was paid in place of the fractional share rights.

Required:

1. What is a fractional share right?
2. Prepare the appropriate entries for the declaration and distribution of the stock dividend.

E 18-19
transaction affecting
retained earnings

• 108 through 108

The balance sheet of Consolidated Paper Inc. included the following shareholders' equity accounts at December 31, 2004:

| | (\$ in millions) |
|---|---------------------|
| Paid-in capital: | |
| Preferred stock, 8.8%, 90,000 shares at \$1 per | \$ 90,000 |
| Common stock, 364,000 shares at \$1 per | 364,000 |
| Paid-in capital—excess of par—preferred | 1,371,000 |
| Paid-in capital—excess of par—common | 2,574,000 |
| Retained earnings | 9,735,000 |
| Treasury stock, at cost, 4,000 common shares | <u>44,000</u> |
| Total shareholders' equity | <u>\$14,669,000</u> |

During 2005, several events and transactions affected the retained earnings of Consolidated Paper.

Required:

Prepare the appropriate entries for each event.

- On March 3, the board of directors declared a property dividend of 740,000 shares of Linsen International common stock that Consolidated Paper had purchased in January as an investment (book value: \$700,000). The investment shares had a fair market value of \$3 per share and were distributed March 7 to shareholders of record March 5.
- On May 3 a 1-for-4 stock split was declared and distributed. The stock split was effected in the form of a 25% stock dividend. The market value of the \$1 per common stock was \$4 per share.
- On July 5 a 2% common stock dividend was declared and distributed. The market value of the common stock was \$10 per share.

- d. On December 1, the board of directors declared the 8th cash dividend on the 90,000 preferred shares, payable on December 28 to shareholders of record December 20.
- e. On December 1, the board of directors declared a cash dividend of \$1.50 per share on its common shares, payable on December 28 to shareholders of record December 20.
- f. Prepare the stockholders' equity section of the December 31 consolidated balance sheet for the year ended in December 31, 2006. Net income for the year was \$440,000.

E 8-20

Multiple-choice: CPA exam: retained earnings

10 min

The following questions dealing with retained earnings are adapted from prior CPA examinations. Determine the response that best completes the statement or questions.

1. At December 31, 2005, and December 31, 2006, Apex Co. had 3,000 shares of \$100 par, 5% cumulative preferred stock outstanding. No dividends were in arrears as of December 31, 2005, and Apex declared a dividend during 2006. During 2006, Apex paid a cash dividend of \$10,000 on its preferred stock. Apex should report dividends in arrears as of December 31, 2006. If financial statements as of that date are prepared, the correct disclosure is:
- Arrears of \$10,000.
 - Arrears of \$15,000.
 - Arrears of \$20,000.
 - Arrears of \$25,000.
2. On January 2, 2006, Lake Mining Co.'s board of directors declared a cash dividend of \$400,000 to shareholders of record on January 15, 2006, payable on February 10, 2006. The dividend is permitted under the state's rules of incorporation. Selected data from Lake's December 31, 2005, balance sheet are as follows:

| | |
|----------------------------|-----------|
| Accumulated depletion | \$100,000 |
| Capital stock | 500,000 |
| Additional paid-in capital | 150,000 |
| Retained earnings | 300,000 |

The \$400,000 dividend includes a liquidating dividend of:

- \$0.
 - \$100,000.
 - \$250,000.
 - \$300,000.
3. When a company declares a cash dividend, retained earnings is decreased by the amount of the dividend on the date of:
- Declaration.
 - Record.
 - Payment.
 - Declaration or record, whichever is earlier.

E 18-21

Profitability ratios

10 min

Comparative balance sheets for Soltech Company (Soltech) for 2006 and 2005 are shown below. Soltech paid no dividends, obtained no financing, and had no significant growth.

Comparative Balance Sheets

in 000s

| | December 31 | |
|---|----------------|--------------|
| | 2006 | 2005 |
| Assets | | |
| Cash | \$ 50 | \$ 40 |
| Accounts receivable | 180 | 120 |
| Short-term investments | 50 | 40 |
| Inventory | 200 | 140 |
| Property, plant, and equipment, net | 800 | 690 |
| | <u>\$1,000</u> | <u>\$890</u> |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | \$ 240 | \$210 |
| Bonds payable | 100 | 60 |
| Paid-in capital | 400 | 400 |
| Retained earnings | <u>260</u> | <u>120</u> |
| | <u>\$1,000</u> | <u>\$890</u> |

Required:

- Calculate the return on shareholders' equity for 2006.
- What does the ratio measure?

- 5-2
New equity issues
Principles
4. Concentrations
• LO3

With widespread offer of new equity security issues, they published the offerings in the *Financial Times* and on Internet sites. Assume the following were among the equity offerings reported in December 2006.

NEW SECURITIES ISSUES

| Equity |
|--|
| American Materials Transfer Corporation (AMTC) 2.5 million common shares, \$50 per share at \$5.50 each, through the efforts of Citicorp Venture Bank (C.V.B.) and Morgan Stanley & Co. in connection with a debt offering. |
| Proactive Solutions Inc. (PSI) 1 million common shares, \$1.00 each, sold at \$1.00 each to a syndicate of equity underwriters, Inc. in connection with a syndicated debt offering. |

Required:

Prepare the appropriate journal entries to record the sale of both issues to underwriters. Ignore share issue costs.

The following excerpts are from an article reported in the February 4, 2005, online issue of *Fortune* Finance.

HOUSTON BUSINESS WIRE, Feb. 4, 2005—CinocoPhillips (NYSE: CPP), an oilfield services company, has announced that it plans to repurchase up to \$1 billion of the company's common stock over a period of up to two years. Consistent with previous guidance, the company will use the program as a means of offsetting dilution to existing shareholders from the company's stock-based compensation programs.

The par amount per share for CinocoPhillips common stock is \$0. Paid-in capital exceeds at par in \$36.2 per share on average. The market price was \$95 in February 4, 2005.

Required:

- Suppose CinocoPhillips repurchases the 10.5 million shares, \$1 billion ÷ \$95, through repurchase on the open market at \$95 per share. Prepare the appropriate journal entry to record the purchase, assuming CinocoPhillips uses the cost method. What effect will the repurchase have on the company's financial statements? What does the company mean by saying that the buyback will serve "as a means of offsetting dilution to existing shareholders from the company's stock-based compensation programs"?

The following questions dealing with shareholders' equity are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of managerial accounting. Determine the response that best completes the statements or questions.

- The par value of common stock represents
 - the estimated fair value of the stock when it was issued.
 - the liability of the company to the shareholder when a company undergoes bankruptcy proceedings.
 - the total value of the stock that must be reflected in the issuing corporation's records.
 - the amount that must be recorded in the issuing corporation's required paid-in capital.
- The equity section of Smith Corporation's statement of financial position is presented below.

| | |
|----------------------------------|--------------|
| Preferred stock, \$100 par | \$12,000,000 |
| Common stock, \$5 par | 10,000,000 |
| Paid-in capital in excess of par | 18,000,000 |
| Retained earnings | 9,000,000 |
| Shareholders' equity | \$49,000,000 |

The common shareholders of Smith Corporation have preemptive rights. If Smith Corporation issues 400,000 additional shares of common stock at \$5 per share, a current holder of 20,000 shares of Smith Corporation's common stock must be given the option to buy

- 400 additional shares.
- 3,774 additional shares.
- 4,000 additional shares.
- 5,157 additional shares.

A stock dividend

- increases the debt to equity ratio of a firm.
- decreases future earnings per share.

- 5-18-23
Stock buyback
CinocoPhillips
Corporation, press
announcement
• LO3

- 5-18-24
Multiple choice: CMA
Common shareholders
equity
• LO3, LO4

- c. decreases the size of the firm
- d. increases shareholder wealth

PROBLEMS

P 18-

Various stock transactions: correction of journal entries

LO3

A spreadsheet service and problem set is available on MyStart WebSite: www.mhhe.com/spreadsheet

Part A

During its first year of operations, the McCollum Corporation entered into the following transactions relating to shareholders' equity. The corporation was authorized to issue 100 million common shares, \$1 per share.

Required

Prepare the appropriate journal entries to record each transaction.

- Jan. 8 Issued 40 million common shares for \$20 per share.
- Mar. 17 Issued 5,000 shares in exchange for custom-made equipment. McCollum's shares have traded recently on the stock exchange at \$20 per share.

Part B

A new staff accountant for the McCollum Corporation recorded the following journal entries during the second year of operations. McCollum retires shares that it reacquires, restores their status as that of authorized but unissued shares.

| | | | (\$ in millions) | |
|---------|--|----------|------------------|----|
| Jan. 12 | Ret. 1 | | 2 | |
| | Paid-in capital—donated over | | | 4 |
| Sept. 1 | Common stock | + | 2 | |
| | Retained earnings | | 48 | |
| | Cash | | | 10 |
| Dec. | Cash | + + | 25 | |
| | Common stock | | | 1 |
| | Gain on sale of previously issued shares | +++ | | 25 |

Required

Prepare the journal entries that should have been recorded for each of the transactions.

P 19-A

Share buyback: comparison of retirement and treasury stock treatment

LO4, LO5

The shareholders' equity section of the balance sheet of TNL Systems, Inc. included the following accounts at December 31, 2005:

| Shareholders' Equity | (\$ in millions) |
|---|------------------|
| Common stock, 240 million shares at \$1 par | \$ 240 |
| Paid-in capital—excess of par | 1,680 |
| Paid-in capital—share repurchase | 1 |
| Retained earnings | 1,100 |

Required:

During 2006, TNL Systems repurchased shares of its common stock and later sold shares in two separate transactions. Prepare the entries for both the purchase and subsequent resale of the shares assuming the shares are (a) retired and (b) treated as treasury stock.

- a. On February 5, 2006, TNL Systems purchased 6 million shares at \$10 per share.
- b. On July 9, 2006, the corporation sold 4 million shares at \$12 per share.
- c. On November 4, 2006, the corporation sold 2 million shares at \$7 per share.

Prepare the shareholders' equity section of TNL Systems' balance sheet at December 31, 2006, comparing the two approaches. Assume all net income earned in 2006–2008 was distributed to shareholders as cash dividends.

P 19-B

Reacquired shares—comparison of retired shares and treasury shares

LO4, LO5

National Supply's shareholders' equity included the following accounts at December 31, 2005:

| Shareholders' Equity | (\$ in millions) |
|---|------------------|
| Common stock, 6 million shares at \$1 par | \$ 6,000,000 |
| Paid-in capital—excess of par | 10,000,000 |
| Retained earnings | 86,500,000 |

Required

National Supply reacquired shares of its common stock in two separate transactions and later sold shares. Prepare the entries for each of the transactions under each of two separate assumptions: (a) shares are (a) retired and (b) accounted for as treasury stock.

Excel

February 15, 2006 Reacquired 300,000 shares at \$8 per share
 February 17, 2007 Reacquired 300,000 shares at \$5.50 per share
 November 9, 2008 Sold 200,000 shares at \$7 per share (assume FIFO cost).

- 2 Prepare the shareholders' equity section of National Supply's balance sheet as December 31, 2008, assuming the shares are (a) required add-in accounted for as treasury stock. Net income was \$4 million in 2006, \$15 million in 2007, and \$16 million in 2008. No dividends were paid during the three-year period.

10-4
 Statement of retained earnings

10-4 through 10-5

Comparative statements of retained earnings for Remm-Dever Corporation were reported in its 2008 annual report as follows:

| REMM-DEVER CORPORATION
Statements of Retained Earnings | | | |
|---|-------------|-------------|-------------|
| For the Years Ended December 31, | 2006 | 2005 | 2004 |
| Balance at beginning of year | \$6,794,497 | \$5,454,052 | \$5,621,443 |
| Net income (loss) | 2,338,700 | 2,240,900 | 1,647,500 |
| Deductions: | | | |
| Stock dividend (30,900 shares) | 242,000 | | |
| Common shares retired (0,000 shares) | | 212,860 | |
| Common stock cash dividends | 889,950 | 696,000 | 0 |
| Balance at end of year | \$8,991,047 | \$6,946,092 | \$7,268,943 |

As December 31, 2003, common shares outstanding of the following:

| | |
|---|-------------|
| Common stock, 1,885,000 shares at \$1 per | \$1,885,000 |
| Paid-in capital—excess of par | 7,420,000 |

Required:

Infer from the reports the events and transactions that affected Remm-Dever Corporation's retained earnings during 2004, 2005, and 2006. Prepare the journal entries that reflect those events and transactions.

10-5
 Shareholders' equity
 transactions & statement
 of shareholders' equity

10-5 through 10-6

Listed below are the transactions that affected the shareholders' equity of Branch-Ruckie Corporation during the period 2006–2008. As December 31, 2005, the corporation's accounts included:

| | |
|---|---------------|
| | 5 million |
| Common stock, 705 million shares at \$1 per | \$705,000,000 |
| Paid-in capital—excess of par | \$30,000,000 |
| Retained earnings | \$70,000,000 |

- November 1, 2006, the board of directors declared a cash dividend of \$1.00 per share in its common shares, payable to shareholders of record November 15, to be paid December 1.
- On March 1, 2007, the board of directors declared a property dividend consisting of corporate bonds of Western Corporation that Branch-Ruckie was holding as an investment. The bonds had a fair market value of \$1.5 million, but were purchased two years previously for \$1.3 million. Because they were intended to be held to maturity, the bonds had not been previously written up. The property dividend was payable to shareholders of record March 15, to be distributed April 5.
- On July 15, 2007, the corporation declared and distributed a 5% common stock dividend (when the market value of the common stock was \$20 per share). Cash was paid for fractional share rights representing 25,000 equivalent shares.
- On November 1, 2007, the board of directors declared a cash dividend of \$1.00 per share in its common shares, payable to shareholders of record November 15, to be paid December 1.
- On January 15, 2008, the board of directors declared and distributed a 3-for-2 stock split effected in the form of a 50% stock dividend when the market value of the common stock was \$22 per share.
- On November 1, 2008, the board of directors declared a cash dividend of \$1.00 per share in its common shares, payable to shareholders of record November 15, to be paid December 1.

Required:

- 1 Prepare the journal entries that Branch-Ruckie recorded during the three-year period for these transactions.

Prepare comparative statements of shareholders' equity for Branch-Ruckie for the three-year period 2006–2008. Net income was \$1 million in 2006, \$345 million in 2007, and \$35 million in 2008. Retained earnings were \$70 million at the beginning of 2006.



P 18-6
Statement of
shareholders' equity

• L01, L03 through L05

Comparative statements of shareholders' equity for Anaconda International Corporation were reported as follows for the fiscal years ending December 31, 2006, 2007, and 2008.

ANACONDA INTERNATIONAL CORPORATION
Statement of Shareholders' Equity
For the Years Ended Dec. 31, 2006, 2007, and 2008
(% in millions)

| | Preferred
Stock
\$10 par | Common
Stock
\$1 par | Additional
Paid-in
Capital | Receivable
from Share
Purchase
Contract | Retained
Earnings | Total
Share-
holders'
Equity |
|---|--------------------------------|----------------------------|----------------------------------|--|----------------------|---------------------------------------|
| Balance at January 1, 2006 | | 58 | 496 | | 1,878 | 2,428 |
| Sale of preferred shares | 0 | | 470 | (360) | | 110 |
| Sale of common shares | | 7 | 63 | | | 70 |
| Cash dividend, preferred | | | | | (1) | (1) |
| Cash dividend, common | | | | | (6) | (6) |
| Net income | | | | | 290 | 290 |
| Balance at December 31, 2006 | 10 | 65 | 1,028 | (360) | 2,151 | 2,894 |
| Reversed liability from
share purchase contract | | | | 260 | | 260 |
| Retirement of shares | | 31 | (27) | | (20) | (16) |
| Cash dividend, preferred | | | | | (20) | (20) |
| Cash dividend, common | | | | | (20) | (20) |
| 3-for-2 split effected in the
form of a dividend | 5 | | 5 | | | 10 |
| Net income | | | | | 340 | 340 |
| Balance at December 31, 2007 | 15 | 96 | 996 | 0 | 2,446 | 3,549 |
| Common stock awarded | | 6 | 59 | | (6) | 59 |
| Cash dividend, preferred | | | | | (22) | (22) |
| Cash dividend, common | | | | | (12) | (12) |
| Net income | | | | | 412 | 412 |
| Balance at December 31, 2008 | 15 | 102 | 1,055 | 0 | 2,814 | 3,941 |

Required

List from the statements the events and transactions that affected Anaconda International Corporation's shareholders' equity during 2006, 2007, and 2008. Prepare the journal entries that reflect these events and transactions.

P 18-7
Reporting
shareholders' equity
comprehensive income,
Hewlett-Packard

• L01 through L04

Hewlett-Packard is a leading provider of computing and imaging solutions and services for business and home. The following is the 2004 Statement of Shareholders' Equity from HP's 2004 annual report. Remember that for comparative purposes, three years are reported in these statements. The 2003 and 2002 portions of the statement are not shown here for brevity. (in percentages)

HEWLETT-PACKARD COMPANY AND SUBSIDIARIES
Consolidated Statement of Stockholders' Equity (in part)

| \$ in millions
Shares: 690 | Number
of Shares | Par
Value | Add'l
Paid-in
Capital | Retained
Earnings | Accum.
Other
Compr.
Income | Total |
|--|---------------------|--------------|-----------------------------|----------------------|-------------------------------------|--------|
| Balance October 31, 2003 | 3,042,761 | 30 | 24,587 | 13,332 | (203) | 37,746 |
| Net earnings | | | | 3,497 | | 3,497 |
| Net unrealized loss on available-for-sale
securities | | | | | (20) | (20) |
| Net unrealized loss on cash flow hedges | | | | | (2) | (2) |
| Minimum pension liability adjustment | | | | | (2) | (2) |
| Cumulative translation adjustments | | | | | (2) | (2) |
| Comprehensive income | | | | | | 3,471 |
| Assumption of stock options with
business acquisition | | | 5 | | | 5 |
| Issuance of common stock, employee
stock plans | 46 | | 592 | | | 638 |
| Repurchase of common stock | (46) | 1 | (3,00) | (200) | | (299) |
| Gain/loss on employee stock options | | | 35 | | | 35 |
| Dividends | | | | (1972) | | (1972) |
| Balance October 31, 2004 | 2,996,760 | 29 | 22,129 | 15,649 | (243) | 37,544 |

Problems

What is the purpose of the statement of shareholders' equity?

How does HP account for its share buybacks?

For its share buybacks in 2004, was the price HP paid for the shares repurchased more or less than the average price at which HP had sold the shares previously? Reconstruct the journal entry HP uses to record the buyback.

4. What is comprehensive income? What is other comprehensive income?

5. What caused the change in HP's comprehensive income in 2004? What was the amount of Accumulated other comprehensive income (loss) that HP reported in its 2004 balance sheet?

During its first year of operations, Kupper Industries Corporation issued 50,000 shares of \$5 per Class B shares for \$250,000 on June 30, 2006. Share repurchases were \$1,900. One year from the same date (July 1, 2007), the corporation retired 10% of the shares for \$30,340.

Required:

1. Prepare the journal entry to record the issuance of the shares.
2. Prepare the journal entry to record the declaration of a \$2 per share dividend on December 31, 2006.
3. Prepare the journal entry to record the payment of the dividend on December 31, 2006.
4. Prepare the journal entry to record the retirement of the shares.

(Note: You may wish to compare your solution to this problem with that of Problem 14-18, which deals with the purchase of treasury stock and the retirement of shares.)

The shareholders' equity of Kupper Industries includes the data shown below. During 2006, cash dividends of \$1.50 million were declared. Dividends were not declared in 2004 or 2005.

| | \$ in millions |
|---|----------------|
| Common stock | \$200 |
| Paid-in capital—excess of par common | 800 |
| Preferred stock, 10%, nonparticipating | 100 |
| Paid-in capital—excess of par preferred | 270 |

Required:

Determine the amount of dividends payable to preferred shareholders and to common shareholders under each of the following two assumptions regarding the characteristics of the preferred stock.

Assumption A: The preferred stock is noncumulative.

Assumption B: The preferred stock is cumulative.

Indicate by letter whether each of the transactions listed below increases (I), decreases (D), or has no effect (N) on retained earnings. Assume the shareholders' equity of the transacting company includes only common stock, paid-in capital, and retained earnings at the time of each transaction.

Transactions

- A sale of common stock.
- Purchase of treasury stock at a cost less than the original issue price.
- Purchase of treasury stock at a cost greater than the original issue price.
- Declaration of a property dividend.
- A sale of treasury stock for more than cost.
- A sale of treasury stock for less than cost.
- A net loss for the year.
- Declaration of a cash dividend.
- Payment of a previously declared cash dividend.
- Issuance of convertible bonds for cash.
- Declaration and distribution of a 5% stock dividend.
- Retirement of common stock at a cost less than its original issue price.
- Retirement of common stock at a cost greater than the original issue price.
- A stock split effected in the form of a stock dividend.
- A stock split in which the par value per share is reduced (not effected in the form of a stock dividend).
- A net loss for the year.

Ellis Transport Company acquired 12 million shares of stock in Clark Corporation at \$44 per share. They are invested by Ellis as available for sale. Ellis sold 300,000 shares at \$46, received a 10% stock dividend, and they paid for the year ended December 31, 2007, 100,000 shares at \$47.

Hint: There is no entry for the stock dividend, but a new investment per share must be calculated for use when the shares are sold.

2-8

What is the purpose of the statement of shareholders' equity?

4-10

2-9

What is the effect of a stock dividend on the balance sheet?

4-10

2-9

What is the effect of a stock dividend on retained earnings?

4-10

What is the effect of a stock dividend on the balance sheet?

2-8

What is the effect of a stock dividend on the balance sheet?

• WJ8

P 18-13

Various shareholders' equity topics
comprehensive

• C 18-13 through 18-15

Excel

P 18-13

Quasi reorganization
based on
Appendix 15;

• WJ8

Excel

Financial Instruments and Liabilities

Required

Prepare journal entries to record these transactions.

Part A

In late 2005, the Nicklaus Corporation was formed. The corporate charter authorizes the issuance of 5,000,000 shares of common stock carrying a \$1 par value, and 1,000,000 shares of \$5 par value, noncumulative, nonparticipating preferred stock. On January 1, 2006, 3,000,000 shares of the common stock are issued in exchange for cash at an average price of \$3.50 per share. Also on January 1, all 1,000,000 shares of preferred stock are issued at \$20 per share.

Required

1. Prepare journal entries to record these transactions.
2. Prepare the shareholders' equity section of the Nicklaus balance sheet as of March 31, 2006. Assume net income for the first quarter 2006 was \$1,000,000.

Part B

During 2006, the Nicklaus Corporation participated in three treasury stock transactions:

- a. On June 30, 2006, the corporation reacquired 200,000 shares for the treasury at a price of \$12 per share.
- b. On July 31, 2006, 10,000 treasury shares are cancelled at \$5 per share.
- c. On September 30, 2006, 90,000 treasury shares are reissued at \$8 per share.

Required

1. Prepare journal entries to record these transactions.
2. Prepare the Nicklaus Corporation shareholders' equity section as it would appear on a balance sheet prepared at September 30, 2006. Assume net income for the second and third quarters was \$1,000,000.

Part C

On October 1, 2006, Nicklaus Corporation decided to replace its \$1 par value common stock 5,000,000 shares authorized (3,000,000 shares issued and 200,000 shares outstanding) with a new common stock issue having a \$5 par value. Since there was a need to collect the amount of the new shares represented by the old stock, the shareholders will receive two shares of the \$5 par stock in exchange for one share of the \$1 par stock they own. The \$1 par stock will be collected and destroyed by the issuing corporation. In November 2006, the Nicklaus Corporation declares a \$1.00 per share cash dividend on common stock and a \$5.00 per share cash dividend on preferred stock. Payment is scheduled for December 1, 2006. Dividends are payable on November 1, 2006.

In December 1, 2006, the Nicklaus Corporation declares a \$5 stock dividend payable in December 1, 2006 to shareholders if received at December 1. At the date of declaration, the common stock was selling on the open market at \$10 per share. The stock dividend will result in 5,000,000 (10 × 5,000,000) additional shares being issued to shareholders.

Required

1. Prepare journal entries to record the declaration and payment of these stock and cash dividends.
2. Prepare the December 31, 2006 shareholders' equity section of the balance sheet for the Nicklaus Corporation. (Assume net income for the fourth quarter was \$2,000,000.)
3. Prepare a statement of shareholders' equity for Nicklaus Corporation for 2006.

A new CEO was hired to revive the floundering Champion Chemical Corporation. The company had endured operating losses for several years, but confidence was emerging that better times were ahead. The board of directors and shareholders approved a quasi reorganization for the corporation. The reorganization included developing a strategy for obsolescence by \$105 million and increasing land by \$5 million. Immediately prior to the restatement, at December 31, 2005, Champion Chemical Corporation's balance sheet appeared as follows (in condensed form):

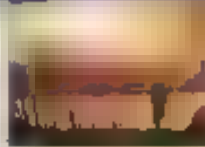
CHAMPION CHEMICAL CORPORATION Balance Sheet At December 31, 2005 (\$ in millions)

| | |
|--|-------|
| Cash | \$ 20 |
| Receivables | 40 |
| Inventory | 230 |
| and | 40 |
| Buildings and equipment (net) | 90 |
| | \$420 |
| Liabilities | \$240 |
| Common stock (120 million shares at \$1 par) | 120 |
| Additional paid-in capital | 60 |
| Retained earnings (deficit) | 200 |
| | \$420 |

Assured

1. Prepare the journal entries appropriate to record the guest reorganization on January 1, 2006.
2. Prepare a balance sheet as it would appear immediately after the reorganization.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. Three cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

World Case 18-1
A public offering of common stock. Dolby Laboratories

447-448

Ray Dolby started Dolby Laboratories nearly 30 years ago, and since then has been a leader in the entertainment industry with audio equipment. Dolby has since is branching in 4K5 Dolby directed to public in 2005. Here's an AP news report.

FIG. 18-10

Dolby's IPO Part 1: Dolby's IPO

The initial public offering marked the end of a long haul for Dolby Laboratories Inc. The San Francisco company, which went private after a decade of losses as it pushed in the movie industry as well as in consumer electronics, plans to sell 27.5 million shares for \$3.50 to \$3.50 each. Founded by Cambridge-trained scientist Ray Dolby, 50 years ago, the company started out manufacturing noise-reduction equipment for the music industry that eliminated the background "hiss" on recordings, and has since expanded to encompass everything from digital audio systems to Dolby Surround sound. The company's IPO, which is being led by underwriters Morgan Stanley and Goldman Sachs Group Inc., is expected to do well not only because of its brand recognition, but also because of its strong financials. (AP)

Problem

1. Assuming the shares are issued at the midpoint of the price range indicated, how much capital did the IPO raise for Dolby Laboratories before any underwriting discount and offering expenses?
2. If the per share net is \$2.50, what journal entry did Dolby use to record the sale?

World Case 18-2
Statement of shareholders' equity

448-449

The shareholders' equity portion of the balance sheet of Sessel's Department Stores, Inc., a large regional specialty retailer, is as follows:

SESSEL'S DEPARTMENT STORES, INC.
Comparative Balance Sheets
Shareholders' Equity Section

(\$ in 000s, except per share amounts)

| | Dec. 31, 2006 | Dec. 31, 2005 |
|---|-----------------|-----------------|
| Shareholders' Equity | | |
| Preferred stock—\$1 par value; 20,000 total shares authorized: | | |
| Series A—600 shares authorized, issued, and outstanding | \$ 1,200 | 1 |
| Series B—33 shares authorized, no shares outstanding | | |
| Common stock—\$.10 par; 300,000 shares authorized | | |
| 19,240 and 16,500 shares issued and outstanding at Dec. 31, 2006, and Dec. 31, 2005, respectively | 964 | 1,650 |
| Additional paid-in capital | 75,997 | 45,431 |
| Retained income | 71,600 | 40,795 |
| Total shareholders' equity | \$18,757 | \$24,876 |

Disclosed elsewhere in Sessel's annual report revealed the following changes in shareholders' equity accounts for 2006, 2005, 2004:

2006:

1. The only changes in retained earnings during 2006 were preferred dividends on preferred stock of \$3,555,000 and net income.
2. The preferred stock is convertible. During the year, 6,542 shares were issued. All shares were converted into 320,100 shares of common stock. No gifts or loans were recorded on the summary in

2. Common shares were raised in a public offering and upon the exercise of stock options. In the statement of shareholders' equity, Sisco's reports these two items as a single line entitled "Issuance of shares."

2005:

1. Net income: \$17,364,000
2. Balance of common stock: 5,580,000 shares at \$ 7.706,000

2004:

1. Net income: \$17,444,000
2. Balance of common stock: 170,000 shares at \$420,000

Required:

From these disclosures, prepare comparative statements of shareholders' equity for 2006, 2005, and 2004.

Question 18-20
Case 18-3
 Is a receivable for stock issued or to be issued a receivable for stock? The prevalent practice is reporting the receivable as a contra-equity account. This results in reporting paid-in capital only to the extent that unissued shares are outstanding. However, many accountants believe receivables for stock for the definition of assets. The opposing view holds that:

View 1: Receivables for stock should be deducted from equity.

View 2: Receivables for stock should be reported as assets.

In considering the question focus on two main issues regarding the practicable approach with regard to financial instruments: (1) the approach.

Required:

1. Which view do you favor? Develop a list of arguments in support of your view prior to the class session for which this case is assigned. (Students are to be divided into two groups: one group will develop an argument in support of View 1, and the other group will develop an argument in support of View 2. Each group will have a spokesperson who will present the group's argument to the class. The class will then discuss the merits of the two views and attempt to reach a consensus view through a consensus voting process.)

After the allotted time, a spokesperson for each of the two views will be selected by the instructor to spokesperson with field arguments from the class in support of that view's position and list of arguments in the board. The class then will discuss the merits of the two lists of arguments and attempt to reach a consensus view through a consensus voting process.

From Networking: Because a public company through an IPO (initial public offering) two weeks ago, you are looking forward to the challenges of being assistant controller for a publicly owned corporation. One such challenge came in the form of a memo in this morning's inbox: "We need to start reporting comprehensive income in our financials," the message from your boss read. "Do some research on that, will you? That concept exists when I went to school." In response, you brought out the financial statements of Cisco Systems, the networking industry leader. The following is an excerpt from a disclosure note from Cisco's 2004 annual report:

From Networking: Because a public company through an IPO (initial public offering) two weeks ago, you are looking forward to the challenges of being assistant controller for a publicly owned corporation. One such challenge came in the form of a memo in this morning's inbox: "We need to start reporting comprehensive income in our financials," the message from your boss read. "Do some research on that, will you? That concept exists when I went to school." In response, you brought out the financial statements of Cisco Systems, the networking industry leader. The following is an excerpt from a disclosure note from Cisco's 2004 annual report:

Comprehensive Income (Loss) (in part)

The following table summarizes the components of comprehensive income (loss) for the periods ended July 31, 2004, July 31, 2003, and July 31, 2002.

| | Years Ended | | |
|---|---------------|---------------|---------------|
| | July 31, 2004 | July 31, 2003 | July 31, 2002 |
| Net income | \$1,254 | \$1,119 | \$1,104 |
| Other comprehensive income (loss) | | | |
| Change in the fair value of available-for-sale securities | 17 | 753 | 104 |
| Change in the fair value of derivatives | 10 | 10 | 10 |
| Change in the fair value of derivatives | 14 | 14 | 14 |
| Total | \$1,285 | \$1,986 | \$1,228 |

Req. 14

Figure 8-18 shows the effect of each requirement on the financial statements of a company. The requirements are: (1) the company must report the requirements in its financial statements; (2) the company must report the requirements in its financial statements; (3) the company must report the requirements in its financial statements; (4) the company must report the requirements in its financial statements; (5) the company must report the requirements in its financial statements.

- What is the primary component of other comprehensive income for Cisco? Why is it reported in a balance sheet? Why does Cisco's 2004 balance sheet amount differ from the 2004 amount reported in the disclosure note? Explain.
- The primary component of other comprehensive income for Cisco is "Change in net unrealized gains on investments." What does this mean? From the information Cisco's financial statements provide, describe how the company calculates the net unrealized gains on investments. How is this calculated? What is the primary component of other comprehensive income for Cisco? Explain.
- What might be possible causes for the "Other" component of Cisco's Other comprehensive income?

Alcoa is the world's leading producer of primary aluminum, fabricated aluminum, and alumina. The following is a press release from the company:

ALCOA ANNOUNCES 30% INCREASE IN SHARE DIVIDENDS, 2-FOR-1 STOCK SPLIT
PITTSBURGH, PA. Alcoa today announced that its Board of Directors approved a base quarterly dividend to increase from \$0.50 per share to \$0.65 per share, and a 2-for-1 stock split. The new dividend will now total \$1.30 compared with \$0.75 cents before the increase.

2-FOR-1 STOCK SPLIT

The Board declared a two-for-one split of Alcoa's common stock. The stock split is subject to approval of Alcoa shareholders who must approve an amendment to the company's articles to increase the authorized shares of common stock in Alcoa's original charter. Shareholders of record on May 26 will receive an additional common share for each share held, which will be distributed on June 4.

COMMITMENT TO STOCK REPURCHASE PROGRAM

Alcoa restates its commitment to its previously announced share repurchase program which it announced last year.

Required

- What are the two primary reporting alternatives Alcoa has to accounting for the repurchase of its shares? What would be the effect of the optional courses of action on total shareholders' equity? Explain. What would be the effect of the optional courses of action on total stock would be presented in Alcoa's balance sheet? If the shares are later resold for an amount greater than cost, how should Alcoa account for the sale?
- What are the two primary changes to account Alcoa has to accounting for the stock split, and how would the stock split affect Alcoa's shareholders' equity? Why?
- How should Alcoa account for the cash dividend and how would it affect Alcoa's balance sheet? Why?

You are the newest member of the staff at Brink & Company, a medium-size investment management firm. You are supervised by Len Kravitz, an employee of two years. Len has a reputation as being technically sound but has a noticeable gap in his accounting education. Knowing you are knowledgeable about accounting issues, he requested you provide him with a synopsis of accounting for share repurchases.

Although the cost of issuing securities is recorded separately and expensed over time," he stated in a handwritten note. "But don't see the formula for the calculation of the cost of issuing securities."

Following is the information that you have gathered from the company's most recent annual report. Included in the notes to the financial statements, the company sold additional shares of its \$5.00 par common stock. The following disclosure note appeared in the company's most recent annual report.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 10—Stock Transactions (in part)

In February and March, the Company sold 1,100,000 shares of Common Stock at \$20.25 per share in a public offering. Net proceeds to the Company were approximately \$22.2 million after the underwriting discount and other costs.

Required

Write a formal memo to your supervisor. Briefly explain how share issue costs are calculated for and how that accounting differs from that of debt issue costs. To make sure your explanation is understood in context of the footnote include in your memo the following:

- At what total amount did the shares sold to the public? How is the difference between this amount and the \$50.2 million net proceeds accounted for?
- The appropriate journal entry to record the sale of the shares.

Answer to Case 8:
Analyzing financial statements: price-earnings ratio, dividend payout ratio

- 97

ICF Foods Company is a large, primarily domestic, consumer foods company involved in the manufacture, distribution, and sale of a variety of food products. Industry averages are derived from *Troy's The Journal of Business and Industrial Economics* and *Food and Beverages: Industry News and Key Business News*. Analyzing the 2004 and 2005 comparative income statements and balance sheets for ICF. The market price of ICF's common stock is \$47 during 2005. (The financial data we use are from actual financial statements of a well-known corporation, but the company name used in our illustration is fictitious and its similarities and dates have been modified slightly to disguise the company's identity.)

ICF FOODS COMPANY
Years Ended December 31, 2004 and 2005

| (\$ in millions) | 2005 | 2004 |
|---|-------------|-------------|
| Comparative Income Statements | | |
| Net sales | \$6,440 | \$5,800 |
| Cost of goods sold | (2,667) | (2,389) |
| Gross profit | 3,773 | 3,411 |
| Operating expenses | (3,916) | (3,629) |
| Operating income | 857 | 782 |
| Interest expense | (54) | (53) |
| Income from operations before tax | 803 | 729 |
| Income taxes | (516) | (287) |
| Net income | \$ 287 | \$ 442 |
| Net income per share | \$2.49 | \$2.44 |
| Average shares outstanding | 115 million | 181 million |
| Comparative Balance Sheets | | |
| Assets | | |
| Current assets | | |
| Cash | \$ 68 | \$ 143 |
| Accounts receivable | 347 | 320 |
| Marketable securities | 356 | |
| Prepayments | 914 | 871 |
| Prepaid expenses | 212 | 134 |
| Total current assets | \$1,877 | \$1,468 |
| Property, plant, and equipment, net | 2,562 | 2,281 |
| Intangible assets | 800 | 843 |
| Other assets | 74 | 60 |
| Total assets | \$5,313 | \$4,652 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities | | |
| Accounts payable | \$ 254 | \$ 276 |
| Accrued liabilities | 493 | 498 |
| Notes payable | 518 | 15 |
| Current portion of long-term debt | 208 | 54 |
| Total current liabilities | 1,473 | 843 |
| Long-term debt | 534 | 728 |
| Deferred income taxes | 407 | 344 |
| Total liabilities | 2,414 | 1,915 |
| Shareholders' equity | | |
| Common stock, \$1 par | 180 | 180 |
| Additional paid-in capital | 21 | 63 |
| Retained earnings | 2,798 | 2,494 |
| Total shareholders' equity | 2,909 | 2,737 |
| Total liabilities and shareholders' equity | \$5,313 | \$4,652 |

Profitability is the key to a company's long-term survival. Profitability indicators focus on a company's ability to provide an adequate return relative to resources devoted to company operations.



Required:

1. Calculate the return on shareholders' equity for ICF. The average return for the stocks listed on the New York Stock Exchange in the same time period was 15.4%. What conclusion can you draw from your calculation?
2. Calculate ICF's earnings per share and earnings-price ratio. The average return for the stocks listed on the New York Stock Exchange in the same time period was 5.4%. What does your calculation indicate about ICF's earnings?

In the United States, shareholders' equity represents a residual amount: assets minus liabilities. It is composed of the primary contributions from the corporation's capital and retained earnings (or earned capital). Worldwide, there is little uniformity in how capital or shareholders' equity is defined or prepared in the balance sheet. Significant differences in the treatment of equity in different countries are common.

Required:

1. Choose a country other than the United States and research the way that country accounts for shareholders' equity. Write a short paper in which you:
 - a. describe the way that country accounts for shareholders' equity;
 - b. compare the way that country accounts for shareholders' equity with the way the United States accounts for shareholders' equity;
 - c. explain the reasons for the differences between the two countries in the way shareholders' equity is accounted for. Optionally, the report might compare the degree of conservatism in the approaches taken by the two countries or the extent to which differences are likely contributors to the differences observed.

Brother International Corporation is a U.S. company that manufactures and markets high-speed labeling machines. Confidence is high that the new machine will help rescue Brother from sharply declining profitability. Brother's chief operating officer, Don Bennett, has been under the gun for not achieving the company's performance goal of achieving a rate of return on assets of at least 12%.

The president of his main Swiss subsidiary, Hanspeter called Susan Sharp into his office. Susan is Brother's controller.

Susan: "Have you been able to get the new accounting system to work?"
Sharp: "Well, it hasn't been perfect, but I understand the final was marvelous. What are the accounting results?"
Susan: "They discussed accepting our bid at the going rate for a face amount of \$12.5 million. We also discussed financing with bank."
Sharp: "I thought we agreed that is the way to go for now."
Susan: "Yes, but I've been thinking. We can issue shares for a total of \$10 million. The dealer is confident and doesn't have a quoted selling price, but the domestic dealers we considered want for around \$10 million. It may would help our rate of return if we keep the cash base as low as possible."

Required:

1. How will Susan's plan affect the return on assets? What accounting issue is involved?
2. Is the proposal ethical?
3. Who would be affected if the proposal is implemented?

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, permits automated collection, validation, coding, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. Filings by foreign companies are not required to be filed on EDGAR, but some of these companies do so voluntarily. Form 10-K or 10-QSB, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.

Required:

1. Access EDGAR on the Internet at www.edgar.gov, or through EdgarScan at edgarscan.secdatabase.com.
2. Search for a public company with which you are familiar. Access its most recent 10-K filing. Scroll to find the statement of shareholders' equity and related notes. If a statement of shareholders' equity is not provided, try another company.
3. Determine from the statements the transactions that occurred during the prior year and three years that affect shareholders' equity.
4. Determine from the statements the transactions that occurred during the prior year and three years that affect the company's retained earnings.
5. Determine the amount of the amount reported on the balance sheet. How do these amounts compare with the amount reported on the balance sheet? How do these amounts compare with the amount reported on the balance sheet?

Research Case 9-10
 Calculating the value of shares issued in exchange for equity in the company

Research Case 9-10
 The Series 1000 master value of shares issued in exchange for equity in the company

Research Case 9-10
 Calculating the value of shares issued in exchange for equity in the company

• 9-10

CPA SIMULATION 18-1

Hansen Corporation
Shareholders' Equity

Invest your knowledge of the concepts presented in this chapter review to ensure you are prepared for the CPA exam. For career success, and prepare for the computer-based CPA exam by accessing our CPA simulations at the test website: www.gphba.com/cpaexam18-1.

The Hansen Corporation simulation tests your knowledge of a variety of shareholders' equity reporting issues.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and professional accounting standards to conduct research, derive solutions, and communicate conclusions related to these issues in a simulated environment created by the following interactive data:

Financial Accounting and Reporting

Time elapsed
0 hours 0 minute

[Questions](#)
[Schedule](#)
[Shareholders' Equity Issues](#)
[Solve & Discuss](#)
[Feedback & Help](#)
[Help](#)

[Home](#)
[Logout](#)

Specific topics in the simulation include:

- Applying judgments in deciding the financial reporting implications of a variety of shareholders' equity transactions.
- Determining the impact of corporate actions on shareholders' and stock price.
- Calculating dividends on preferred stock.
- Determining an understanding of financial reporting effects of treasury stock transactions.
- Communicating the benefits of a stock buyback.
- Researching appropriate accounting for nondeductible preferred stock.



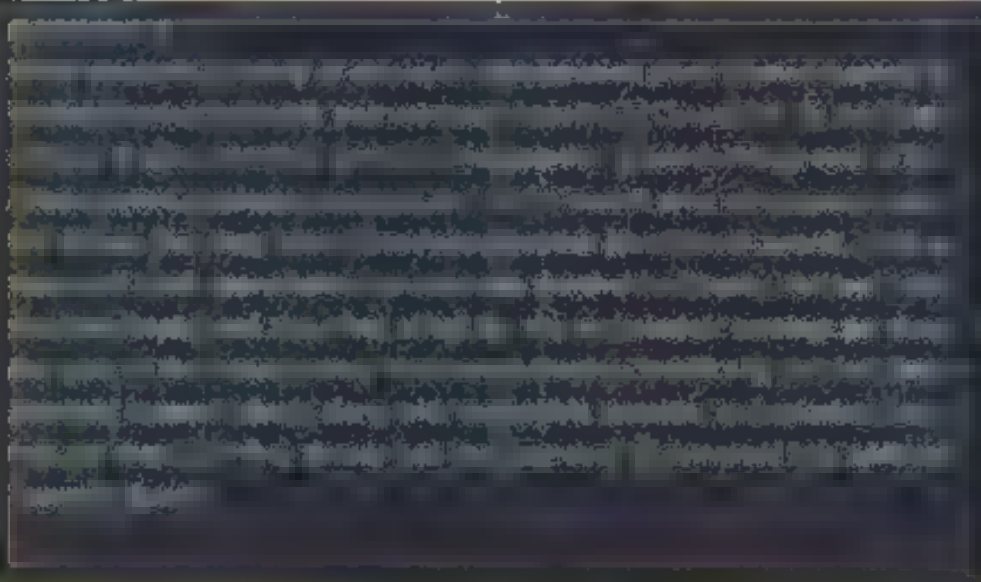
Additional Financial Reporting Issues

4
SECTION

19

CHAPTER

Share-Based Compensation and Earnings Per Share



After studying this chapter, you should be able to:

- **LO1** Explain and implement the accounting for stock-based plans.
- **LO2** Explain and implement the accounting for stock options.
- **LO3** Explain and implement the accounting for stock-based compensation.
- **LO4** Explain and implement the accounting for employee share purchase plans.
- **LO5** Distinguish between a simple and a complex stock-based plan.
- **LO6** Describe what is meant by the weighted average number of common shares.
- **LO7** Differentiate the effect on EPS of the sale of new issues, a stock dividend or stock split, and the reacquisition of shares.
- **LO8** Discuss how preferred dividends affect the calculation of EPS.
- **LO9** Discuss how options, rights, and warrants are included in the calculation of EPS.
- **LO10** Describe how convertible securities are included in the calculation of EPS.
- **LO11** Explain the way contingently issuable shares are included in the calculation of EPS.
- **LO12** Describe the way EPS information should be reported in an income statement.

FINANCIAL REPORTING CASE



Proper Motivation?

The coffee room discussion Thursday morning was particularly lively. Yesterday's press release describing National Electronic Ventures' choice of Sandra Veres as its president and chief operating officer was today's hot topic in all the company's departments. The press release noted that Ms. Veres's compensation package includes elements beyond salary that are intended "to not only motivate her to ac-

cept the offer, but also to remain with the company and work to increase shareholder value." Excerpts from the release follow:

National Electronic Ventures, Inc. today announced it had attracted G. Sandra Veres, respected executive from the wireless communications industry to succeed Chairman Ruffalo. Ms. Veres will assume the new role as CEO on Jan. 1, 2006. Ms. Veres will receive a compensation package at NEV of more than \$3 million in salary, stock options to buy more than 600,000 shares and a grant of restricted stock.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Complete your response to the questions provided at the end of the chapter.

QUESTIONS

1. How can a compensation package such as this serve as an incentive to Ms. Veres? (page 952)
2. Ms. Veres received a "grant of restricted stock." How should NEV account for the grant? (page 957)
3. Included were stock options to buy more than 600,000 shares. How will the options affect NEV's compensation expense? (page 954)
4. How will the presence of these and other similar stock options affect NEV's earnings per share? (page 954)

PART A SHARE-BASED COMPENSATION

Employee compensation plans frequently include share-based awards. These may be in the form of awards of shares, stock options, or cash payments tied to the market price of shares. Sometimes only key executives participate in a stock benefit plan. Typically, an executive compensation plan is tied to performance in a strategy that uses compensation to motivate recipients. Some firms pay their directors entirely in shares. Actual compensation is based on the market value of the shares. Obviously, that is quite an incentive to act in the best interests of shareholders.

Although the variations of share-based compensation plans are seemingly endless, they share common goals. Whether the plan is a stock award plan, a stock option plan, a restricted stock plan, or one of the several similar plans, the goals are to (1) provide compensation to designated employees, while sometimes providing those employees with some sort of performance incentive. Likewise, the goals in accounting for each of these plans are the same for each: (1) to determine the fair value of the compensation and (2) to expense that compensation over the periods in which participants perform services. The issue is not trivial. The median total compensation of chief executives of the 188 largest U.S. businesses, including salary, bonus, present value of stock options, long-term incentive payouts, and the value of restricted stock at the time of grant, was \$6.4 million in 2003.

Stock Award Plans

Executive compensation sometimes includes a grant of shares of stock. Usually, such shares are restricted in such a way as to provide some incentive to the recipient. Typically, restricted stock award plans are tied to continued employment. In a restricted stock plan, shares are usually awarded in the name of the employee, although the company might retain legal possession of the shares. The employee has all rights of a shareholder, subject to certain restrictions or forfeiture. Ordinarily, the shares are subject to forfeiture by the employee if employment is terminated within some specified number of years from the date of grant. The employee usually is not free to sell the shares during the restriction period and a statement of intent often is inscribed on the stock certificates. These restrictions give the employee an incentive to remain with the company until rights to the shares vest. Graphic 19-1 describes the restricted award plan for the *Kmart Holding Co.*

Graphic 19-1

Restricted Stock Award Plan: Kmart

Restricted Stock (in part)

During the 3-year vesting period, the shares are subject to forfeiture if the employee leaves the company. If the employee remains with the company for the full 3-year period, the shares are automatically converted into unrestricted shares. The shares are subject to forfeiture if the employee leaves the company before the 3-year period.

FINANCIAL REPORTING CASE

07 p. 957

The compensation associated with a share of restricted stock (or nonvested stock) is the market price at the grant date of an unrestricted share of the same stock. This amount is accrued as compensation expense over the service period for which participants receive the shares, usually from the date of grant to when restrictions are lifted (the vesting date). The expense is recognized in Periods 1–9.

ADDITIONAL CONSIDERATION

An alternative way of accomplishing the same result is to debit deferred compensation for the full value of the restricted shares (\$60 million in the illustration) on the date they are granted:

Debit deferred compensation for the full value of the restricted shares (\$60 million) and credit common stock for the same amount. The deferred compensation account is then amortized over the service period.

Deferred compensation for 5 million shares at \$20
Common stock 5 million shares at \$20
Paid-in capital—excess of cost (difference)

DE

5

00

If so, deferred compensation is reported as a reduction, resulting in a zero net effect on shareholders' equity. The credit to common stock when compensation expense is settled over the vesting period, just as in Illustration 19-1, the result is an increase in both compensation expense and shareholders' equity each year over the vesting period.

As shareholders' equity is reduced, deferred compensation is credited to common stock over the vesting period, just as in Illustration 19-1, the result is an increase in both compensation expense and shareholders' equity each year over the vesting period.

Judo, Inc. has a restricted stock award plan. It will set aside 5 million shares to award to employees who work for the company. The shares are subject to forfeiture if employment is terminated within four years. Shares have a current market price of \$20 per share.

Judo, Inc. has a restricted stock award plan. It will set aside 5 million shares to award to employees who work for the company. The shares are subject to forfeiture if employment is terminated within four years. Shares have a current market price of \$20 per share.

January 1, 2006

No entry

Calculate total compensation expense

| \$ million | Estimated shares awarded |
|------------|--------------------------|
| 5 | 5 million shares |
| 4 | 4 million shares |
| 1 | 1 million shares |

Total compensation expense is the allocated expense over the four-year service (vesting) period 2006–2009.

4 years \$ million per year

December 31, 2006, 2007, 2008, 2009

\$5 million

Compensation expense 5 million 4 million

5

Paid-in capital—restricted stock

4

December 31, 2009

Common stock 5 million shares at \$20

100

Common stock 5 million shares at \$20

100

Paid-in capital—excess of cost (difference)

55

Once the shares vest and the restrictions are lifted, paid-in capital—restricted stock is replaced by common stock and paid-in capital—excess of cost.

The amount of the compensation is measured at the date of grant—at the market price on that date. Any market price changes that might occur after that don't affect the total expense.

If restricted stock is forfeited because, say, the employee leaves the company, related entries previously made would simply be reversed. This would result in a decrease in compensation expense in the year of forfeiture. The total compensation, adjusted for the forfeited amount, is then allocated over the remaining service period.

ILLUSTRATION 19-1
Restricted Stock Award Plan

| Account | Debit | Credit |
|----------------------------------|-------|--------|
| Compensation expense | 5 | |
| Paid-in capital—restricted stock | | 5 |
| Common stock | | 100 |
| Paid-in capital—excess of cost | | 55 |

When restrictions are lifted

| Account | Debit | Credit |
|----------------------------------|-------|--------|
| Paid-in capital—restricted stock | 5 | |
| Common stock | | 100 |
| Paid-in capital—excess of cost | | 55 |

Stock Option Plans

More commonly, employees aren't actually awarded shares, but rather are given the option to buy shares in the future. In fact, stock options have become an integral part of the total compensation package for key officers of most medium and large companies.¹⁰ As with any compensation plan, the accounting objective is to expense compensation expense during the period of service for which the compensation is given.



¹⁰ A recent survey of 400 corporations, 90% of which disclosed the existence of stock option plans, (AICPA, "Compensation: Trends and Insights," 2004).

EXPENSE—THE GREAT DEBATE

Stock option plans give employees the option to purchase, at a specified number of shares, the firm's stock, (b) at a specified price, (c) during a specified period of time. One of the heated debates about stock options has been how to value the options and how to expense them. Historically, options have been measured at their intrinsic value—the simple difference between the market price of the shares and the option price at which they can be sold.

For instance, an option that permits an employee to buy \$25 stock for \$10 has an intrinsic value of \$15. However, plans in which the exercise price equals the market value of the underlying stock at the date of grant, which describes most executive stock option plans, have no intrinsic value and therefore result in zero compensation when measured this way, even though the fair value of the options can be quite significant. About half of the chief executives of the largest U.S. companies cashed in stock options in 2000 for a median gain of \$8.7 million. In 2000, Citigroup's chairman Sanford Weill exercised enough stock options to realize a pre-tax profit of \$ 96 million from selling shares. To many, it seems counterproductive to not recognize compensation expense for plans that routinely provide executives with a substantial part of their total compensation.

Failed Attempt to Require Expensing. This is where the controversy comes in. In 1993, the FASB issued an Exposure Draft of a new standard that would have required companies to measure options at their fair values at the time they are granted and to expense an amount over the appropriate service period. To jump straight to the punch line, the board bowed to public pressure and agreed to withdraw the requirement before it became a standard. The FASB consented to encourage, rather than require, that fair value compensation be recognized as expense. Companies were permitted to continue accounting under APB Opinion 25 (the intrinsic value method referred to in the previous paragraph).⁴ Before we discuss the details of accounting for stock options, it is helpful to look back at what led the FASB to first propose fair value accounting and later rescind that proposal.

As the 1990s began, the public was becoming increasingly aware of the enormity of executive compensation in general, and compensation in the form of stock options in particular. The lack of accounting for this compensation was apparent, prompting the FASB to encourage the FASB to move forward in their stock option project. Even Congress got involved. In 1992, a bill was introduced that would require firms to report compensation expense based on the fair value of options. Motivated by this encouragement, the FASB issued its exposure draft in 1993. The real disharmony began then. Opposition to the proposed standard was broad and vehement, and that perhaps is an understatement, based their opposition on one or more of three objections:

1. *Options with no intrinsic value at expiry have zero fair value and should not give rise to expense recognition.* The FASB, and even some critics of the proposal, were adamant that options provide valuable compensation at the grant date to recipients.
2. *It is impossible to measure the fair value of the compensation at the grant date.* The FASB argued vigorously that value can be approximated using one of several pricing models. These are statistical models that use computers to incorporate information about a company's stock and the terms of the stock option to estimate the options' fair value. We might say the FASB position is that it's better to be approximately right than precisely wrong.
3. *The proposed standard would have unacceptable economic consequences.* Essentially, this argument asserted that requiring this popular means of compensation to be expensed would cause companies to discontinue the use of options.

The opposition included corporate executives, auditors, members of Congress, and the SEC.⁵ Ironically, the very groups that provided the most impetus for the rule initially—the SEC and Congress—were among the most effective detractors in the end. The

⁴ Accounting for Stock Issued to Employees. *Opinions of the Accounting Principles Board* (Am. 25 (New York: AICPA, 1955)). All of the "Big Six" CPAs lobbied against the proposal. Finally, Enron and a 40-member coalition introduced a bill to Congress that would have nullified the FASB effort, thereby, at least in theory, establishing a precedent.

Financial Reporting Call

Financial Reporting Call

Financial Reporting Call

only group that offered much support at all was the academic community, and that was by-and-large nonvocal support. In reversing its decision, the FASB was not swayed by any of the specific arguments of any opposition group. Dennis Berensford, chair of the FASB at the time, indicated that it was fear of government control of the standard-setting process that prompted the Board to modify its position. The Board remained steadfast that the proposed change was appropriate.

Voluntary Expensing. Prior to 2002, only two companies—Boeing and Wynn-Dixie—reported stock option compensation expense at fair value. However, in 2002 public outrage mounted amid high-profile accounting scandals at Enron, WorldCom, Tyco, and others.

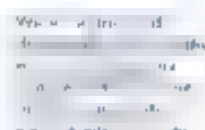
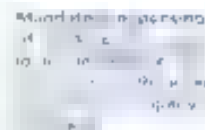
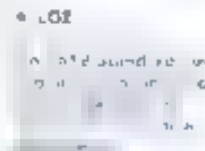
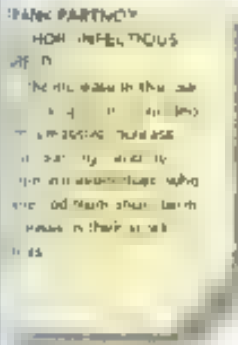
Some degree of consensus emerged that greed on the part of some corporate executives contributed to the fraudulent and misleading financial reporting at the time. In fact, many of the critics were pointing to the proliferation of stock options as a primary form of compensation as a culprit in fueling that greed. An episode of the PBS series *Frontline* argues that not expensing the value of stock options contributed to the collapse of Enron. For these reasons, renewed interest surfaced in requiring stock option compensation to be reported in income statements. At least partly in response to this public sentiment, Coca-Cola announced in 2002 that it would begin reporting the fair value of its stock options as an expense. Perhaps seeing the “writing on the wall,” other companies soon followed suit. By the end of 2004, nearly 50% of firms were voluntarily expensing options.

Current Requirement to Expense. Emerging from the heated debate was an FASB Standard that now requires fair value accounting for employee stock options, eliminating altogether the intrinsic value approach.¹ As you might expect, the proposal did not come without opposition. Many of the same groups that successfully blocked the FASB from enacting a similar requirement in 1995 led the opposition. Not surprisingly, at the forefront of the resistance were the high-tech companies that extensively use stock options as a primary form of compensating employees and thus are most susceptible to a reduction in reported earnings when their compensation is included in income statements. For example, consider Apple Computer’s earnings for the 12 months ending March 27, 2004. Reported net income of \$179 million would have been only \$56 million, or 69% less, if the Standard had been in effect then.²

It’s important to note that the way we account for stock options has no effect whatsoever on cash flows; only on whether the value of stock options is included among expenses. This is not to say that companies haven’t altered their compensation strategies. Already, we have seen a shift in the way some companies compensate their employees. Partly due to the negative connotations that has become associated with executive stock options and partly due to the stock market decline of recent years that caused millions of options to become worthless, we’ve seen fewer options and more bonuses and restricted stock awards. For its fiscal year ending June 30, 2004, for instance, technology company IBM Corporation awarded stock options to employees worth only 1% of the \$1.25 billion value of its 2004 options. Let’s examine the way stock options are accounted for now.

RECOGNIZING THE FAIR VALUE OF OPTIONS

Accounting for stock options parallels the accounting for pension plan stock, as discussed in the first part of this chapter. That is, we measure compensation as the fair value of the stock options at the grant date and then record this amount as compensation expense over the service period for which employees receive the options. Estimating the fair value requires the use of one of several option pricing models. These mathematical models approximate a variety of



¹ FASB Statement of Financial Accounting Standards No. 123, *Share-Based Payment*, issued in 2002. The standard requires companies to measure the fair value of stock options at the grant date and then record this amount as compensation expense over the service period for which employees receive the options. Estimating the fair value requires the use of one of several option pricing models. These mathematical models approximate a variety of

The fair value of stock options is determined by using an option pricing model. The model should take into account the

A company is required to estimate the fair value of stock options granted to employees.

The fair value of stock options is determined by using an option pricing model. The model should take into account the

information about a company's stock and the terms of the stock option to estimate the option's fair value. The model should take into account the

- Exercise price of the option.
- Expected life of the option.
- Current stock price of the stock.
- Expected dividends.
- Expected stock price return rate.
- Expected volatility of the stock.

The FASB's new Standard modified the way companies actually measure fair value. It calls for using models that permit greater flexibility in modeling the ways employees are expected to exercise options and the expected employment termination patterns after options vest.¹⁸ The new accounting theory, in which the pricing models are based, is a topic explored in depth in Finance courses and is subject to active empirical investigation and development. A simplified discussion is provided in Appendix 19.¹⁹

An interesting approach to determining fair value was suggested by Cisco Systems prior to the company being required to expense its options for the first time. A major reason why we use option pricing models to estimate fair value is that employee stock options are non-transferable; the recipient cannot sell those options. As a result, they are not traded on organized exchanges like shares of stock, so we cannot find an actual market-determined price. Cisco suggests creating a mechanism to establish an actual market-determined value and avoid the need to estimate a value. Cisco proposes creating a new financial instrument each time it makes options that are assigned to it under the terms of the option. It is effectively sell that financial instrument to institutional investors. The price the market is willing to pay in this arms-length transaction would then serve as the per share fair value of the employee options that the financial instrument mimics. At the time of this writing, the SEC had not yet approved this approach.

The total compensation as estimated by the options' fair value is reported as compensation expense over the period of service for which the options are given. Recipients normally are not allowed to exercise their options for a specified number of years. This delay provides added incentive to remain with the company. The time between the date options are granted and the first date they can be exercised is the vesting period and usually is considered to be the service period over which the compensation expense is reported. The process is depicted in Illustration 19-2.

ILLUSTRATION 19-2 Stock Options

Fair value is reported as compensation expense

The value of stock options is determined by using an option pricing model. The model should take into account the

At January 1, 2006, Universal Communications acquired 1 million of the company's \$50 shares before December 31, 2007, to vest the shares on the date of grant, \$50 per share. The fair value of the options, estimated by an appropriate option pricing model, is \$20.

January 1, 2006

No activity

Calculate total compensation expense

| | |
|--------------|---------------------------------|
| \$ | Estimated fair value per option |
| 20 | Options granted |
| \$20 million | Total compensation |

The total compensation is to be allocated as compensation expense over the four-year service (vesting) period, 2006-2009.

\$20 million ÷ 4 years = \$5 million per year

December 31, 2006, 2007, 2008, 2009

Compensation expense for 2006, 2007, 2008, 2009

Per share: Compensation—stock options

(\$10 million ÷ 20)

¹⁸ See, for example, *Journal of Financial Accounting*, Vol. 1, No. 1, Winter 1994, (New York: Wiley, 1994), pp. 1-10. The example discussed is provided in FRS 23 (revised 1994).

Estimated Forfeitures. If previous experience indicates that a material number of the options will be forfeited before they vest (due to employee turnover or violation of other terms of the options), we adjust the fair value estimate on the grant date to reflect that expectation. For instance, if a forfeiture rate of 5% is expected, Universal's estimated total compensation would be $4\% \times \$10 \text{ million} = \76 million instead of the $5\% \times \$10 \text{ million} = \5 million compensation expense it would have been charged if it had expected a 5% forfeiture rate. We see the effect of this possibility in Illustration 19-2A.

When forfeiture expectations change, the compensation expense is adjusted.

| | (\$ in millions) |
|--|------------------|
| 2006 | |
| Compensation expense $[\$80 \times 45\% \times 4]$ | |
| Paid in capital—stock options | |
| 2007 | |
| Compensation expense $[\$80 \times 45\% \times 4]$ | |
| Paid in capital—stock options | |
| 2008 | |
| Compensation expense $[\$80 \times 45\% \times 3 + \$16 \times 3]$ | 16 |
| Paid in capital—stock options | |
| 2009 | |
| Compensation expense $[\$80 \times 45\% \times 2 + \$16 \times 2]$ | 8 |
| Paid in capital—stock options | |

Illustration 19-2A
Estimated Forfeitures

The value of the company stock is \$10 per share. The 4% forfeiture rate is expected to be 5% in 2008 and 2009.

The expense each year is based on the estimated forfeiture rate. The expense each year is based on the estimated forfeiture rate.

What if that expectation changes later? Universal should adjust the cumulative amount of compensation expense recorded to date in the year the estimate changes.¹⁸ Suppose, for instance, that during 2008 (the third year) Universal revises its estimate of forfeitures from 4% to 5%. The new estimate of total compensation would then be $5\% \times \$10 \text{ million} = \5 million or \$22 million. For the first three years, the portion of the total compensation that should have been expensed would be $\$5 \text{ million} \times 4 = \20 million and an additional $\$16 \text{ million}$ (if that was recorded in 2006–2007 before the estimate changes, an additional \$16 million would have been recorded in 2008). Then the additional charge during the remaining 2 years (2008–2009) would be the total of \$16 million.

When forfeitures are revised, the compensation expense is adjusted.

ADDITIONAL CONSIDERATION

Notice that the \$16 million is the amount that would have been reported in each of the first two years if Universal had assumed a 5% forfeiture rate. Also be aware that this approach is contrary to the usual way companies estimate. For instance, assume a company acquires a four-year depreciable asset having an estimated residual value of 5% of cost. The \$16 million would be depreciated straight line at \$4 million over the four-year useful life. If the estimated residual value changes after two years to 10%, the new \$16 million would be depreciated by the \$16 million depreciation recorded in the first two years, and the remaining \$34 million would be depreciated equally, \$17 million per year over the remaining two years.

WHEN OPTIONS ARE EXERCISED

If half the options in Illustration 19-2 (five million shares) are exercised on July 1, 2012, when the market price is \$50 per share, the following journal entry is recorded:

¹⁸Share-Based Payment, Statement of Financial Accounting Standards (SFAS) No. 123, revised, 1995, FASB 123-4, par. 41.

Recognizing the expense of the options for the first year is based on the market price on the exercise date.

| July 1, 2012 | (\$ in millions) |
|---|------------------|
| Cash (\$5 exercise price × 5 million shares) | 25 |
| Paid-in capital—stock options (at the market price of \$50 per share) | 40 |
| Common stock (5 million shares at \$5 per share) | 5 |
| Paid-in capital—excess of par (to balance) | 40 |

Notice that the market price at exercise is irrelevant. Changes in the market price of underlying shares do not influence the previously measured fair value of options.

WHEN UNEXERCISED OPTIONS EXPIRE

If options that have vested expire without being exercised, the following journal entry is made (assuming none of the options in our illustration was exercised):

Paid-in capital—stock options—unexercised (at expiration) is debited to paid-in capital—excess of par when options expire without being exercised.

| | (\$ in millions) |
|--|------------------|
| Paid-in capital—stock options (unexercised shares) | 80 |
| Paid-in capital—expiration of stock options | 80 |

In effect, we renease the paid-in capital attributable to the stock options plan. Compensation expense for the four years' service, as of the measurement date, is not affected.

Because an incentive plan is not qualified as a stock bonus plan, a deferred tax consequence arises.

A deferred tax asset is recognized now for the future tax savings from the exercise of the options and exercise.

If the amount of tax savings exceeds the deferred tax asset, the difference is recognized as equity.

ADDITIONAL CONSIDERATION

Tax Consequences of Stock-Based Compensation Plans

In Illustration 19.2 we ignored the tax effect. To illustrate the effect of taxes, let's assume Universal Communications' incentive tax rate is 40%.

Case 1. Recall from our earlier discussion that with an incentive plan the employer receives no tax deduction at all. If Universal Communications qualified as an incentive plan, the company will receive no tax deduction upon exercise of the options and thus no tax consequences.

Case 2. On the other hand, if we assume the plan does not qualify as an incentive plan, Universal will deduct from taxable income the difference between the exercise price and the market price at the exercise date. Recall from Chapter 16 that this creates a temporary difference between accounting income, in which compensation expense is recorded currently, and taxable income for which the tax deduction is taken later, upon the exercise of the options. We assume the temporary difference is the cumulative amount expensed on the options. The following entries would be recorded on the dates shown:

| December 31, 2006, 2007, 2008, 2009 | (\$ in millions) |
|--|------------------|
| Compensation expense (\$20 million × 4 years) | 80 |
| Paid-in capital—stock options | 80 |
| Deferred tax asset (40% × \$20 in 2006 income tax expense) | 8 |

The after-tax effect on earnings is thus \$12 million each year (\$20 million × 80%).

If all of the options (ten million shares) are exercised in April 2011:

| | |
|--|-----|
| Cash (\$45 exercise price × 10 million shares) | 450 |
| Paid-in capital—stock options (4 million shares) | 20 |
| Common stock (10 million shares at \$5 exercise price) | 50 |
| Paid-in capital—excess of par (to balance) | 400 |

a. Options exercised when the tax benefit exceeds the deferred tax asset
If the market price is \$60 per share:

| | |
|---|-----|
| Income taxes payable (35% × \$10 million × 4 years) | 140 |
| Deferred tax asset (4 years × \$8 million) | 32 |
| Paid-in capital—tax effect of stock options remainder | 128 |

b. Options exercised when the tax benefit is less than the deferred tax asset
If the market price is \$40 per share:

| | | |
|--|-------------------|-----|
| Income taxes payable Jan 31 | 0 million dollars | 40% |
| Income tax expense or paid in capital loss effect of stock options exercised | | 12 |
| Equity as of Jan 31 | \$4 million | 32 |

The tax consequences of all non-modifying stock options as well as restricted stock plans are accounted for in the manner demonstrated above.

| | | |
|--|-------------------|-----|
| Income taxes payable Jan 31 | 0 million dollars | 40% |
| Income tax expense or paid in capital loss effect of stock options exercised | | 12 |
| Equity as of Jan 31 | \$4 million | 32 |

PLANS WITH PERFORMANCE OR MARKET CONDITIONS

stock option (and other share-based) plans often specify a performance condition as a market condition that must be satisfied before employees are allowed the benefits of the award. The objective is to provide employees with additional incentive for managerial achievement. For instance, an option might not be exercisable until a performance target is met. The target could be divisional revenue, earnings per share, sales growth or rate of return on assets. The possibilities are limitless. On the other hand, the target might be market-related, perhaps a specified stock price or a stock price change exceeding a particular index. The way we account for such plans depends on whether the condition is performance-based or market-based.

Plans with Performance Conditions. Whether we recognize compensation expense for performance-based options depends (a) initially on whether it's probable¹ that the performance targets will be met and (b) ultimately on whether the performance target actually is met. Accounting is as described earlier for other stock options. Initial estimates of compensation cost as well as subsequent revisions of that estimate take into account the likelihood of both forfeitures and achieving performance targets. For example, in Illustration 19-2 if the options described also had included a condition that the options would become exercisable only if sales increase by 10% after four years, we would estimate the likelihood of this occurring specifically, is it probable? Let's say we initially estimate that it is probable that sales will increase by 10% after four years. Then, our initial estimate of the total compensation would have been unchanged at:

תח: 1000000

...the ...
...the ...
...the ...
...the ...
...the ...
...the ...

If compensation from a
 1st option depends
 on many things
 then we can't figure
 it out. So we
 wait for a way to
 solve problems the larger
 we become.

$$\begin{array}{rcll} \$10 \text{ in } 100\% & \times & \$6 & = \$6 \text{ in } 100\% \\ \text{Options} & & \text{Fair value} & \text{Expected} \\ \text{Expected} & & & \text{div} \end{array}$$

Suppose, though, that after two years, we estimate that α is now predictive that sales will increase by 10% after four years. Then, our new estimate of the total compensation would

| 0 | x | \$k | 0 |
|-----------------------|---|------------|----------|
| Initial expected loss | | Fair value | Estimate |

In that case, we would reverse the \$40 million expensed in 2006–2007 because no commensuration can be recognized for options that don't vest due to performance targets not being met and that's our expected loss.

If a witness has been
 present at the time
 the victim was injured
 and the witness has
 not been interviewed
 by the police, the
 witness should be
 interviewed as soon as
 possible.

ADDITIONAL CONSIDERATION

It's interesting to note that some companies have reacted to the "reversibility" of performance plans by revising their compensation plans to substitute performance-based stock awards or performance-based options for traditional stock options. As discussed

*The following information was obtained from the records of the Department of Health and Human Services, Office of Inspector General, Washington, D.C., dated 10/1/78.

earlier compensation for traditional employee stock options is measured at the grant date and expensed over the appropriate service period. If the options become worthless because the share price fails to exceed the exercise price at the end of the service period, no expense is recorded. On the other hand, if we get paid, compensation for a similar performance-based option is recorded, but the options become worthless because the performance condition isn't met. We won't reverse any compensation already recorded.

Of course, it all goes well—share prices rise, performance exceeds expectations—compensation is the same under either approach; it makes things even. But if results are disappointing—share prices rise, performance falls short of expectations—compensation expense is higher for traditional options than for performance options. It's the more favorable effect on reported earnings that attracts companies to performance plans.

As an example, *Southwest Airlines*, headquartered in Memphis, began in 2005 to replace employee stock options with performance share units, with vesting conditional on the company's earnings growing, meeting or exceeding that of peer financial institutions, expressly to avoid the more stringent expensing requirements of the former plan.

Conversely, assume that our initial expectation is that it is *not* probable that sales will increase by 10% after four years and so we record no annual compensation expense. But then after two years, we estimate that it is probable that sales will increase by 10% after four years. At that point, our revised estimate of the total compensation would change to \$40 million, and we would reflect the cumulative effect on compensation in 2008 earnings; we record compensation thereafter.

2008

Compensation expense (\$40 ÷ 4) = \$10

Paid in capital—stock options

2009

Compensation expense (\$40 ÷ 4) = \$10

Paid in capital—stock options

20

40

Plans with Market Conditions. If the award contains a market condition (e.g., a stock option with an exercisability requirement based on the stock price reaching a specified level), then no special accounting is required. The fair value estimate of the share option already implicitly reflects market conditions due to the nature of share option pricing models. So, we recognize compensation expense regardless of when, if ever, the market condition is met.

Stock Appreciation Rights

Stock appreciation rights (SARs) overcome a major disadvantage of stock options: plans that require employees to actually buy shares when the options are exercised. Even though the options' exercise price may be significantly lower than the market value of the shares, the employee still must come up with enough cash to take advantage of the bargain. This can be quite a burden if the award is sizable. In a nonqualified stock option plan, income taxes also would have to be paid when the options are exercised.¹²

SARs offer a solution. Unlike stock options, these awards enable an employee to benefit by the amount that the market price of the company's stock rises without having to purchase shares. Instead, the employee is given the share appreciation, which is the amount by which the market price of the stock exceeds a preset fair price, usually the market price at the date of grant. For instance, if the share price rises from \$35 to \$45, the employee receives \$10 cash for each SAR held. The share appreciation usually is payable in cash, but the recipient has the choice between cash and shares. A plan of this type offered by *IBM* is described in Graphic 19-2.

¹²For information about how taxes are paid on stock options, see Section 401.

Long-Term Performance Plan (in ~~and~~)[illegible]**GRAPH 19-2**

Si la aplicación
de los HM
se prolonga

IS IT DEBT OR IS IT EQUITY?

In some plans, the employer chooses whether to issue shares or cash at exercise. In other plans, the choice belongs to the employee.³ Who has the choice determines the way it's accounted for. More specifically, the accounting treatment depends on whether the award is considered an equity instrument or a liability. If the employer can elect to settle in shares of stock rather than cash, the award is considered to be equity. On the other hand, if the employee will receive cash or can elect to receive cash, the award is considered to be a liability.

SARS PAYABLE IN SHARES (EQUITY)

When an SAR is considered to be equity (because the employer can elect to settle in shares of stock rather than cash), we estimate the fair value of the SARs at the grant date and accrue that compensation as expense over the service period. Normally, the fair value of an SAR is the same as the fair value of a stock option with the same terms. The fair value is determined at the grant date and accrued in compensation expense over the service period the same way as for other share-based compensation plans. The total compensation is not revised for subsequent changes in the price of the underlying stock. This is demonstrated in Case 3 of Illustration 19-3 on the next page.

SARS PAYABLE IN CASH (LIABILITY)

When an SAR is considered to be a liability (because the employee can elect to receive cash upon retirement), we estimate the fair value of the SARs and recognize that liability as compensation expense over the requisite service period consistent with the way we account for stock and other share-based compensation. However, because these plans are considered to be liabilities, it's necessary to periodically re-estimate the fair value in order to continually adjust the liability (and corresponding compensation) until it is paid. Be sure to note that this is consistent with the way we account for other liabilities. Recall from our discussions in Chapter 8, for instance, that when a tax rate change causes a change in the evening, liability for deferred income taxes, we adjust that liability.

The periodic expense (and adjustment to the liability) is the fraction of the total compensation earned to date by recipients of the SARs (based on the elapsed fraction of the service period) reduced by any amounts expensed in prior periods. For example, if the fair value of SARs at the end of a period is \$8, the total compensation would be \$80 million if 10 million SARs are expected in year. Let's say two years of a four year service period have elapsed, and \$21 million was expensed the first year. Then, compensation expense the second year would be \$19 million, calculated as $(2/4 \text{ of } \$80) \text{ million}$, minus \$2. An example spanning several years is provided in Illustration 9.3, case 2.

Note that the way we treat changes in compensation estimates entails a catch-up adjustment in the period of change (consistent with the usual treatment) of a change in estimate.

²Many such plans are called equity or plans and require no cash to pay back a loan. EARN and an S-401 that calls for voluntary deduction.

expensive in the period
h. 1. 31. 1911

[illegible]

ILLUSTRATION 19-3**Stock Appreciation Rights**

Case 1: Equity

Case 2: Liability

At January 1, 2006, Universal Communications issued SARs that, upon exercise, entitle key executives to receive compensation equal in value to the excess of the market price at exercise over the share price at the date of grant. The SARs vest at the end of 2009 (cannot be exercised earlier) and expire at the end of 2010. The fair value of a SAR's award at January 1, 2006 is \$5.00. The market price of Universal's common stock at January 1, 2006 is \$4.00. The market price at the end of 2006, 2007, 2008, 2009, and 2010 is \$6.40, \$8.50, \$4.30, \$4.30, and \$5, respectively.

Case 1: SARs considered to be equity because Universal can elect to settle in shares. Universal stock at exercise.

January 1, 2006

No entry

Allocate total compensation expense

| | |
|-----------|-----------------------------|
| \$5 | Is treated as value per SAR |
| 1 million | SARs granted |
| 5 | Total compensation |

The total compensation is allocated to expense over the four-year service (vesting) period, 2006-2009.

$$\$5 \text{ million} \div 4 \text{ years} = \$1.25 \text{ million per year}$$

December 31, 2006, 2007, 2008, 2009

| | | |
|-------------------------------|---------|-------------|
| Compensation expense—SAR plan | 4 years | \$5 million |
| Liability—SAR plan | | 20 |

Case 2: SARs considered to be liability because Universal cannot elect to settle in shares.

January 1, 2006

No entry

December 31, 2006

| | | |
|--|--|-------------|
| Compensation expense (\$5.00 × 10 million) | | \$5 million |
| Liability—SAR plan | | 5 |

December 31, 2007

| | | |
|--|----|----|
| Compensation expense (\$6.40 × 10 million × 3/4) | 21 | 19 |
| Liability—SAR plan | | 7 |

December 31, 2008

| | | |
|--|----|---|
| Compensation expense (\$4.30 × 10 million × 2/4) | 21 | 5 |
| Liability—SAR plan | | |

December 31, 2009

| | | |
|--|----|----|
| Liability—SAR plan | | 2 |
| Compensation expense (\$4.30 × 10 million × 1/4) | 21 | 19 |

Remember that for most changes in estimate, revisions are allocated over remaining periods rather than all at once in the period of change. The treatment is, however, consistent with the way we treat changes in forfeiture rate estimates as we discussed earlier in the chapter.

The liability continues to be adjusted after the service period if the rights haven't been exercised yet.

December 31, 2010

| | | |
|---|----|----|
| Compensation expense (\$5 × 10 million × 1/4) | 21 | 19 |
| Liability—SAR plan | | 7 |

It's necessary to continue to adjust both compensation expense and the liability until the SARs ultimately either are exercised or expire.¹³ Assume for example that the SARs are exercised on October 11, 2011, when their fair value is \$4.30 and executives choose to cash the market price appreciation in cash.

¹³ If the liability is not exercised, the liability will be adjusted to reflect the change in the market price of the underlying stock.

For information on the date of the stock price at the date of grant.

The stock price at the date of grant is \$4.00.

The stock price at the date of grant is \$4.00.

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The stock price at the date of grant is \$4.00.

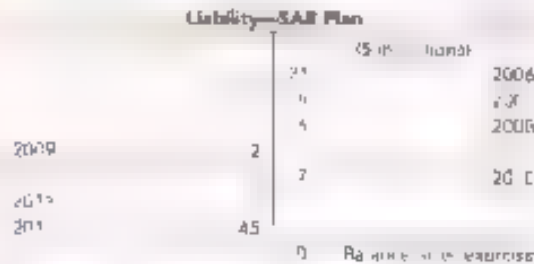
Compensation expense and the liability continue to be adjusted until the SARs expire or are exercised.

It's necessary to continue to adjust both compensation expense and the liability until the SARs ultimately either are exercised or expire.

October 11, 2017

| | | |
|---|-------------|----|
| Liability—SAR plan | \$5 million | |
| Compensation expense (\$4.50 × million) × 100 | | 5 |
| Liability—SAR plan balance | 45 | |
| Equity | | 45 |

Let's look at the changes in the liability—SAR plan account during the 2006–2017 period:



The liability account of the SAR plan is affected by the change in the liability.

Employee Share Purchase Plans

Employee share purchase plans often permit all employees to buy shares directly from their company at favorable terms. The primary intent of these plans is to encourage employee ownership of the company's shares. Presumably loyalty is enhanced among employee-shareholders. The employee also benefits because, typically, these plans allow employees to buy shares from their employer without brokerage fees and, perhaps, at a slight discount. Some companies even encourage participation by matching or partially matching employee purchases.

As long as (a) substantially all employees can participate, (b) employees have no longer than one month after the price is fixed to decide whether to participate, and (c) the discount is no greater than 5% (or can be justified as reasonable), accounting is straightforward. Simply record the sale of new shares as employees buy shares.

If these criteria for the plan being noncompensatory are not met, say the discount is 15%, accounting is similar to other share-based plans. The 15% discount to employees, then, is considered to be compensation, and this amount is recorded as expense. * Compensation expense replaces the cash debit for any employer-paid portion. Say an employee buys shares on part under the plan for \$840 rather than the current market price of \$1,000. The \$150 discount is recorded as compensation expense.

Share purchase plans permit employees to buy shares from the corporation.

| | |
|-----------------------------------|-----|
| Cash discounted price | 650 |
| Compensation expense (\$150 × 5%) | 150 |
| Contributions—Employee's share | 300 |

DECISION MAKERS' PERSPECTIVE

In several previous chapters, we have revisited the concept of "earnings quality" (as first defined in Chapter 4). We also have noted that one rather common practice that negatively influences earnings quality is earnings management, which refers to companies' use of one or more of several techniques designed to artificially increase (or decrease) earnings. A frequent objective of earnings management is to meet analysts' expectations regarding projections of income. The share-based compensation plans we discuss in this chapter suggest another motive managers sometimes have to manipulate income. If a manager's personal



Analyst's expectations regarding projections of income.

*This discussion is based on the assumption that the plan is noncompensatory. If the plan is compensatory, the accounting is more complex.

compensation includes company stock, stock options, or other compensation based on the value of the firm's stock. It is not hard to imagine an increased desire to ensure that stock expectations are met and thus reported earnings have a positive effect on stock prices. In fact, as we discussed earlier, that is precisely the reaction these incentive compensation plans are designed to elicit. Investors and creditors, though, should be alert to indications of attempts to artificially manipulate income and realize that the likelihood of earnings management is probably higher for companies with generous short-based compensation plans.

One way managers might manipulate numbers is to low-ball the data that go into the option-pricing models. The models used to estimate fair value are built largely around subjective assumptions. This possibility emphasizes the need for investors to look closely at the assumptions used as reported in the stock option footnote, and particularly at how those assumptions change from year to year. ■

CONCEPT REVIEW EXERCISE

SHARE-BASED COMPENSATION PLANS

Listed below are transactions dealing with various stock benefit plans of Fortune-Time Corporation during the period 2006–2008. The market price of the stock is \$45 at January 1, 2006.

- On January 1, 2006, the company issued 10 million common shares to divisional managers under its restricted stock award plan. The shares are subject to forfeiture if employment is terminated within three years.
 - On January 1, 2006, the company granted incentive stock options to its senior management exercisable for 1.5 million common shares. The options must be exercised within five years, but not before January 1, 2008. The exercise price of the stock options is equal to the fair market value of the common stock on the date the options are granted. An option pricing model estimates the fair value of the options to be \$4 per option. All recipients are expected to remain employed through the vesting date.
 - On January 1, 2006, the company granted 4 million SARs to its junior managers. The SARs entitle managers to receive their choice of cash or stock equal in value to the excess of the market price at exercise over the share price at the date of grant. The SARs vest at the end of 2007 (cannot be exercised until then) and expire at the end of 2009. The fair value of the SARs is \$4 at January 1, 2006. The fair value is \$4 and \$5 at December 31, 2006 and 2007, respectively.
- Recorded compensation expense on December 31, 2006.
 - A divisional manager holding 1 million of the restricted shares left the company to become CEO of a competitor on September 15, 2007, before the required service period ended.
 - Recorded compensation expense on December 31, 2007.

Required

Prepare the journal entries that Fortune-Time recorded for each of these transactions. (Give any tax effects.)

SOLUTION

January 1, 2006

Restricted Stock Award Plan

No entry.

Total compensation is measured as 10 million shares \times \$45 = \$450 million.

Stock Options

No entry.

Total compensation is measured as 1.5 million shares \times \$4 = \$6 million.

SARs

No entry.

December 31, 2006

Restricted Stock

Compensation expense (\$450 million \div 3 years)

 Paid-in capital—restricted stock

(\$ in millions)

90

01

Stock Options

Compensation expense (\$6 million ÷ 2 years)
Paid in capital—stock options

3

SARs

Compensation expense (\$4 × 4 million ÷ 2)
Liability—SAR plan

2

d

September 15, 2007

Restricted Stock

Paid in capital—restricted stock 10% × \$50
Compensation expense

5

5

December 31, 2007

Restricted Stock

Compensation expense (\$450 ÷ 150 × 5 million ÷ 2 years)
Paid in capital—restricted stock

142.5

42.5

Stock Options

Compensation expense (\$6 million ÷ 2 years)
Paid in capital—stock options

3

SARs

Compensation expense (\$5 × 4 million ÷ 2) × 8
Liability—SAR plan

92

52

EARNINGS PER SHARE

A typical corporate annual report contains four comparative financial statements, an extensive list of disclosure notes and schedules, and several pages of charts, tables, and textual descriptions. Of these items, it is an item reported most frequently in the media and receives by far the most attention by investors and creditors: earnings per share. The reasons for the considerable attention paid to earnings per share certainly include the desire to find a way to summarize the performance of business enterprises into a single number.

Summarizing performance in a way that permits comparisons is difficult because the companies that report the numbers are different from one another. And yet, the desire to condense performance to a single number has created a demand for EPS information. The profession has responded with rules designed to maximize the comparability of EPS numbers by minimizing the inconsistencies in their calculation from one company to the next.¹

Information gains greatly whenever it can be related with similar information about other companies and with similar information about the same company for other time periods.

PART B

Earnings per share is the number of earnings units that a share of the common stock represents.

PERSPECTIVE

The International Accounting Standards Board (IASB) has as a stated objective to narrow worldwide differences in accounting practices and the presentation of financial information. The IASB has worked toward uniformity since 1973, but harmonization has by no means been achieved. The IFS requirements you see in this chapter are a result of cooperation between the FASB and the IASB to develop common requirements for earnings per share. Significant differences still exist among countries that do not choose to follow the International Standards in this area.

¹ See, for example, International Accounting Standards Board, *International Financial Reporting Standards* (London: IASB, 2001), p. 10.

Comparability is

- a principle of GAAP
- a principle of accounting
- a principle of financial reporting
- a principle of financial reporting

GAAP is a principle of

- a principle of accounting
- a principle of financial reporting
- a principle of financial reporting
- a principle of financial reporting

• LO1

GAAP is a principle of

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- a principle of financial reporting
- a principle of financial reporting

GAAP is a principle of

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- a principle of financial reporting
- a principle of financial reporting
- a principle of financial reporting

Illustration 19-4

Basic Earnings Per Share Calculation

- the most common way to calculate earnings per share
- the most common way to calculate earnings per share
- the most common way to calculate earnings per share
- the most common way to calculate earnings per share

Keep in mind as you study the requirements that a primary goal is comparability. As so many of the rules devised to achieve consistency are unavoidably arbitrary, meaning that other choices the FASB might have made in many instances would be equally acceptable.

Basic Earnings Per Share

A firm is said to have a simple capital structure if it has no outstanding securities that will potentially dilute earnings per share. In this context, to dilute means to reduce earnings per share. For instance, if a firm has convertible bonds outstanding and those bonds are converted, the resulting increase in common shares could decrease (or dilute) earnings per share. That is, the new shares represented by the bonds might participate in future earnings. So, convertible bonds are referred to as potential common shares. Other potential common shares are convertible preferred stock, stock options, and contingently payable shares. We will see how the potentially dilutive effects of these securities are included in the calculation of EPS later in this chapter. Now, though, our focus is on the calculation of EPS for a simple capital structure—when no potential common shares are present. In these cases, the calculation is referred to as basic EPS, and is simply earnings available to common shareholders divided by the weighted-average number of common shares outstanding.

In the most elemental setting, earnings per share (or net income per share) is merely a firm's net income (or net loss) divided by the number of shares of common stock outstanding throughout the year. The calculation becomes more demanding (a) when the number of shares outstanding changes during the reporting period, (b) when the earnings available to common shareholders are diminished by dividends to preferred shareholders, or (c) when we allow for the potential dilution of common shares by the firm's convertible securities (a topic of this section of the chapter). To illustrate the calculation of EPS in each of its dimensions, we will use only one example in this chapter. We'll start with the most basic situation and then add one new element at a time until we have considered all the principal ways the calculation can be affected. In this way you can see the effect of each component of earnings per share and just in isolation, but in relation to the effects of other components as well. The basic calculation is shown in Illustration 19-4.

Sumair Financial Corporation reported net income of \$ 54 million in 2006 (tax rate 40%). The calculation is as follows:

Common Stock

Jan. 1 60 million common shares outstanding

(amounts in millions, except per share amount)

Basic EPS

| | |
|--------------------|-------|
| Net income | |
| \$ 54 | 52.57 |
| Shares outstanding | |

ISSUANCE OF NEW SHARES

Because the shares discussed in Illustration 19-4 remained unchanged throughout the year, the denominator of the EPS calculation is simply the number of shares outstanding over the number of shares has changed. It's necessary to find the weighted average of the shares outstanding during the period the earnings were generated. For instance, if an additional 10 million shares had been issued on July 1 of the year just ended, we calculate the weighted-average number of shares to be 65 million as demonstrated in Illustration 19-5 on the next page.

• LO6

Because the new shares were outstanding only 10 months, or 10/12 of the year, we increase the 60 million share amount outstanding by the additional shares—only for the fraction of the year (10/12), they were outstanding. The weighted average is $60 + (2 \text{ million} \times 10/12) = 61\frac{2}{3}$ million shares. The result is that we give the shares issued a 2/3 weight.

Seymour Financial Corporation reported net income of \$154 million for 2006 (tax rate 40%). Its capital structure included:

Common Stock

- Jan. 1 60 million common shares outstanding
 Mar. 9 12 million new shares were sold
 (amounts in millions, except per share amount)

Basic EPS

$$\begin{array}{rcccl} & \text{Net income} & & & \\ & \$154 & & & \\ 60 & 12 \text{ (10/12)} & 70 & = & \$2.20 \\ \text{Shares} & \text{New} & & & \\ \text{at Jan. 1} & \text{Shares} & & & \end{array}$$

ILLUSTRATION 19-5 Weighted Average

Any new shares issued are time-weighted by the fraction of the period they were outstanding and are added to the number of shares outstanding.

Any new shares issued are time-weighted by the fraction of the period they were outstanding and are added to the number of shares outstanding.

resources the stock sale provides the company are available for generating income only after the date the shares are sold. So, weighting is necessary to make the shares in the fraction's denominator consistent with the income it is numerator.

STOCK DIVIDENDS AND STOCK SPLITS

Recall that a stock dividend or a stock split is a distribution of additional shares to existing shareholders. But there's an important and fundamental difference between the increase in shares caused by a stock dividend and an increase from selling new shares. When new shares are sold, both assets and shareholders' equity are increased by an additional investment in the firm by shareholders. On the other hand, a stock dividend or stock split merely decreases the number of shares without affecting the firm's assets. In effect, the same pie is divided into more pieces. The result is a larger number of less valuable shares.¹⁴ This fundamental change in the nature of the shares is reflected in a calculation of EPS by simply increasing the number of shares.

In Illustration 19-6, notice that the additional shares created by the stock dividend are *not* weighted for the time period they were outstanding. Instead, the increase is treated as if it occurred at the beginning of the year.

Seymour Financial Corporation reported net income of \$154 million in 2006 (tax rate 40%). Its capital structure included:

Common Stock

- Jan. 1 60 million common shares outstanding
 Mar. 9 12 million new shares were sold
 June 7 A 10% stock dividend was distributed
 (amounts in millions, except per share amount)

Basic EPS:

$$\begin{array}{rcccl} & \text{Net income} & & & \\ & \$154 & & & \\ 60 & (120) & + & 12 \text{ (10/12)} & (110) & = & \$2.00 \\ \text{Shares} & \text{New} & & & & & \\ \text{at Jan. 1} & \text{Shares} & & & & & \\ & \text{Stock dividend adjustment} & & & & & \end{array}$$

ILLUSTRATION 19-6 Stock Dividends and Stock Splits

When a stock dividend or stock split is declared, the number of shares outstanding is increased by the number of shares distributed. The increase is treated as if it occurred at the beginning of the year.

The number of shares outstanding after a 10% stock dividend is 1.10 times higher than before. This multiple is applied to both the beginning shares and the new shares sold before the stock distribution. If this had been a 25% stock dividend, the multiple would have been 1.25; a 2-for-1 stock split means a multiple of 2, and so on.

¹⁴ The number of shares outstanding after a 10% stock dividend is 1.10 times higher than before. This multiple is applied to both the beginning shares and the new shares sold before the stock distribution. If this had been a 25% stock dividend, the multiple would have been 1.25; a 2-for-1 stock split means a multiple of 2, and so on.

• 107 Since the EPS within the 85 stock dividend (\$2.70) is 6% more than it is with the stock distribution (\$2.55) This is caused by the increase in the number of shares. Due to the sale of new shares, this should not be interpreted as a "dilution" of earnings per share. Shareholders' interests in their company's earnings have not been diluted. Instead, each shareholder's interest is represented by more—though less valuable—shares.

A simplistic but convenient way to view the effect is to think of the redistribution of shares as a "change of color." After the stock dividend, the more valuable "blue" shares are gone, replaced by a larger number of, let's say, "green" shares. From now on, we compute the earnings per "green" share, whereas we previously calculated earnings per "blue" share. We restate the number of shares retroactively to reflect the stock dividend, as if the shares always had been "green." After all, our intent is to let the calculation reflect the fundamental change in the nature of the shares.

ADDITIONAL CONSIDERATIONS

When last year's EPS is reported again for comparison purposes in the current year's comparative income statements, it must reflect the increased shares from the stock dividend. For instance, suppose last year's EPS were \$2.09 (\$115 million net income divided by 55 million weighted-average shares). When reported again for comparison purposes in the 2006 comparative income statements, that figure would be restated to reflect the 10% stock dividend: $\$115 / 55 \times 101 = \2.10 .

| | | |
|---------------------|--------|--------|
| Earnings per Share: | 2006 | 2005 |
| | \$2.00 | \$1.90 |

The EPS numbers now are comparable — both reflect the stock dividend. Otherwise we would be comparing earnings per common share with earnings per “blue share.” In any case both are earnings per “share” should

REACQUIRED SHARES

If shares were reacquired during the period (either retired or as treasury stock), the weighted-average number of shares is reduced. The number of reacquired shares is time-weighted on the fraction of the year they were *not* outstanding, prior to being subtracted from the number of shares outstanding during the period. Let's modify our stock-split illustration to assume 8 million shares were reacquired on October 1 as treasury stock. Illustration 9

ILLUSTRATION 19-7
Reacquired Shares

the 11.0% increase in the weighted by (12) to reflect the

Source: Financial data are reported in volume of \$154 million in 2006 (tax rate 40%).

Common Stock

| | |
|---------|---|
| Jan. 1 | 63 million common shares outstanding |
| Mar. 1 | 2 million new shares were sold |
| June 17 | A 10% stock dividend was distributed |
| Dec. | 8 million shares were repurchased as treasury stock |

Amounts in million, except per share amounts.

Basic EPS:

| | | | Net income | | | | |
|--------|-----|---------------|------------|----|-----|-------|-------|
| | | | \$154 | | | \$154 | |
| 60 | 100 | 12 | 100 | 12 | 100 | 75 | 52.05 |
| Shares | | New | Shares | | | | |
| at end | | Shares | | | | | |
| | | | | | | | |
| | | Stock divider | | | | | |
| | | adjustment | | | | | |

የገዢው የጥራት ማረጋገጫ ስርዓት በጥንቃቄ ማረጋገጥ ይቻላል። በዚህ ስርዓት ውስጥ የጥራት ማረጋገጫ ስርዓት በጥንቃቄ ማረጋገጥ ይቻላል።

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EARNINGS AVAILABLE TO COMMON SHAREHOLDERS

The denominator in an E/P calculation is the weighted-average number of common shares outstanding. Logically, this numerator should similarly represent earnings available to common shareholders. This was automatic in our discussion of this point because the only shares outstanding were common shares. But when a senior class of shareholders (i.e. preferred shareholders) is entitled to a specified allocation of earnings (like preferred dividends), those amounts are subtracted from earnings before calculating earnings per share.²⁸

● LGI

dividend: annual corporation reported net income of \$ 54 million in 2006; tax rate: 40%; its capital structure is as follows:

ILLUSTRATION 19-8
Preferred Dividends

Common Stock

| | |
|-----------|--|
| January | 60 million common shares outstanding |
| March | 12 million new shares were sold |
| June 7 | A 0% stock dividend was distributed |
| October 7 | 8 million shares were reacquired as treasury stock |

Predefined Stock, Nonconvertible

| Year | Age | Sex | Weight (kg) | Height (cm) | Body Mass Index (kg/m ²) | Waist Circumference (cm) | Waist-Hip Ratio |
|------|-----|--------|-------------|-------------|--------------------------------------|--------------------------|-----------------|
| 1997 | 18 | Male | 70.0 | 175.0 | 22.2 | 85.0 | 0.85 |
| 1998 | 19 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 1999 | 20 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2000 | 21 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2001 | 22 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2002 | 23 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2003 | 24 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2004 | 25 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2005 | 26 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2006 | 27 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2007 | 28 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2008 | 29 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2009 | 30 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2010 | 31 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2011 | 32 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2012 | 33 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2013 | 34 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2014 | 35 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2015 | 36 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2016 | 37 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2017 | 38 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2018 | 39 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2019 | 40 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2020 | 41 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2021 | 42 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2022 | 43 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2023 | 44 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2024 | 45 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2025 | 46 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2026 | 47 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2027 | 48 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2028 | 49 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2029 | 50 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2030 | 51 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2031 | 52 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2032 | 53 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2033 | 54 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2034 | 55 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2035 | 56 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2036 | 57 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2037 | 58 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2038 | 59 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2039 | 60 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2040 | 61 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 2041 | 62 | Male | 60.0 | 165.0 | 21.2 | 75.0 | 0.75 |
| 2042 | 63 | Female | 55.0 | 160.0 | 21.5 | 75.0 | 0.82 |
| 2043 | 64 | Male | 65.0 | 170.0 | 22.5 | 80.0 | 0.80 |
| 2044 | 65 | Female | 50.0 | 155.0 | 20.8 | 70.0 | 0.78 |
| 20 | | | | | | | |

AMOUNT IN MILLIONS, EXCEPT PER SHARE AMOUNT

Basic EPS:

| No. income | | Percentage change | | | |
|------------------|-------|-------------------|--------|--------|--------|
| \$754 | | 14* | | \$ 40 | \$2 00 |
| 20 | (1 0) | +2 0 | (1 10) | 5 0 | 75 |
| Shares
at Jan | ↓ | New
Shares | ↓ | 1888 v | share |

Stock dividend adjustment

Suppose no dividends were declared for the year. Should we adjust for preferred dividends? Yes. The preferred stock is cumulative—and now preferred stock is. This means that when dividends are not declared, the unpaid dividends accumulate to be paid in a future year when dividends are subsequently declared. The assumption is that at least the year's dividend preference (as a distribution that is eventually to be paid

We have encountered no potential common shares to this point in our continuing discussions. As a result, we have what is referred to as a simple capital structure. Although at this point you may question this, for a public corporation, a single presentation of basic earnings per common share is appropriate. We can only imagine how a situation as simple as complex capital structures. In these situations, separate presentations are required: basic EPS and diluted EPS.

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Diluted Earnings Per Share

POTENTIAL COMMON SHARES

Imagine a situation in which convertible bonds are outstanding that will significantly increase the number of common shares if bondholders exercise their options to exchange bonds for shares of common stock. Should these be ignored when earnings per share is calculated? After all, they haven't been converted as yet, so to assume an increase in shares for a conversion that may never occur might mislead investors and creditors. On the other hand, if conversion is imminent, not taking into account the dilutive effect of the shares may mislead investors and creditors. The profession's solution to the dilemma is to calculate earnings per share "wide."

Securities like these convertible bonds, while not being common stock, may become common stock through their exercise or conversion. Therefore they may dilute earnings per share and are called potential common shares. A firm is said to have a complex capital structure if potential common shares are outstanding. Besides convertible bonds, other potential common shares are convertible preferred stock, stock options, rights or warrants, and contingently issuable securities. (We'll discuss each of these shortly.) A firm with a complex capital structure reports two EPS calculations. Basic EPS ignores the dilutive effect of such securities. Diluted EPS incorporates the dilutive effect of all potential common shares.

essentially a "worst case scenario."

OPTIONS, RIGHTS, AND WARRANTS

- **LO#** Stock options, stock rights, and stock warrants are similar. Each gives its holders the right to exercise their option to purchase common stock, usually at a specified exercise price. The dilution that would result from their exercise should be reflected in the calculation of diluted EPS, but not basic EPS.

To include the dilutive effect of a security means to calculate EPS *as if* the potential increase in shares already has occurred (even though it hasn't yet). So, for a stock option, right, or warrant, we pretend the option has been exercised. In fact, we assume the rights were exercised at the beginning of the reporting period, or when the options were granted, whichever is later. We then assume the cash proceeds from selling the new shares at the exercise price are used to buy back as many shares as possible at the shares' average market price during the year. This is demonstrated in Illustration 19-9 on the next page.

When we simulate the exercise of the stock options, we calculate EPS as if 15 million shares were sold at the beginning of the year. This obviously increases the number of shares in the denominator by 15 million shares. But it is insufficient to simply add the additional shares without considering the accompanying consequences. Remember, if this best-case scenario had occurred, the company would have had \$300 million cash proceeds from exercise of the options, $15 \text{ million shares} \times \$20 \text{ exercise price per share}$. What would have been the effect on earnings per share? This depends on what the company would have done with the \$300 million cash proceeds. Would the proceeds have been used to buy more inventory? Increase the sales force? Expand facilities? Pay dividends?

Obviously, there are literally hundreds of choices, and it's unlikely that any two companies would spend the \$300 million exactly the same way. But remember our objective is to calculate some degree of uniformity in the way firms determine earnings per share so the resulting numbers are comparable. So, standard-setters decided on a single assumption for all firms: provide some degree of comparability.

For diluted EPS, we assume the proceeds from exercise of the options were used to buy back as many treasury shares as the cash allows. The net increase in shares is the difference between the shares assumed issued and those assumed reacquired—in our example, 15 million shares issued minus 12 million shares reacquired $(\$300 \text{ million} \div \$25 \text{ share price})$ equals 3 million net increase in shares.

The way we take into account the dilutive effect of stock options is called the *treasury stock method* because of our assumption that treasury shares are purchased with the cash proceeds of the exercise of the options. Besides providing comparability, this assumption is also plausible because, if the options were exercised, more shares would be needed to

FINANCIAL
REPORTING CASE

10-1-75

Diluted EPS

| | Net income | Deferred dividends | Interest | | |
|--|-----------------|---------------------------|---------------------|-------|-------|
| | \$ 54 | 34 | 165 | \$165 | \$187 |
| | 60 (1/1) | 12 (1/1) | 90 | | |
| | Shares at Jan 1 | New Shares | Exercise of options | | |
| | | Stock dividend adjustment | | | |

to reflect the after-dividend effect. For example, prior to the stock dividend, the bonds were exercisable for 12 million shares ($10\% \times 120$). After the stock dividend, the bonds were exercisable for 12 million shares.

ILLUSTRATION 19-10

Concluded

| | |
|---------------------------|-------|
| Net income | \$ 54 |
| Deferred dividends | 34 |
| Interest | 165 |
| Exercise of options | 90 |
| Stock dividend adjustment | 187 |

ADDITIONAL CONSIDERATION

The \$300 million of convertible bonds in our illustration were issued at face value. Suppose the bonds had been issued for \$282 million; in that case, the adjustment to earnings would be modified to include the amortization of the \$18 million bond discount. Assuming straight-line amortization and a 10-year maturity, the adjustment to the diluted EPS calculation would have been:

$$+ \frac{(\$300 - \$282 + 10 \text{ years}) \times (1 - 40\%)}{12}$$

to reflect the fact that the interest expense would include the \$30 million stated interest plus one-tenth of the bond discount.

Our illustration describes the treatment of convertible bonds. The same treatment pertains to other debt that is convertible into common shares such as convertible notes payable. Remember from our discussion of debt in earlier chapters that all debt is similar whether in the form of bonds, notes, or other configurations.

ADDITIONAL CONSIDERATION

Notice that we assumed the bonds were converted at the beginning of the reporting period since they were outstanding all year. However, if the convertible bonds had been issued during the reporting period, we would assume their conversion occurred on the date of issue. It would be illogical to assume they were converted before they were issued. If the convertible bonds in our illustration had been sold on September 1, for instance, the adjustment to the EPS calculation would have been:

$$- \frac{[\$300 - 40\% (\$300)] (4/12)}{12 (4/12)}$$

to reflect the fact that the after-tax interest savings and the net increase in shares would have been effective for only four months of the year.

This is our approach not just for convertible bonds but for any potential common shares. For example, we assumed the options in our illustration were exercised at the beginning of the reporting period so the net increase in shares was not weighted for a fraction of the year outstanding. If the options had been granted to a company executive on April 1, the adjustment to the weighted-average number of shares would have been:

$$+ 15 \times 12 (9/12)$$

to reflect the fact that the net increase in shares would have been effective for only nine months of the year.

We assume convertible securities were converted for options exercised at the beginning of the reporting period.

| | |
|---------------------------|-------|
| Net income | \$ 54 |
| Deferred dividends | 34 |
| Interest | 165 |
| Exercise of options | 90 |
| Stock dividend adjustment | 187 |

ILLUSTRATION 19-12 Antidilutive Warrants

| Year | EPS |
|------|--------|
| 2006 | \$2.25 |
| 2005 | \$2.25 |
| 2004 | \$2.25 |
| 2003 | \$2.25 |
| 2002 | \$2.25 |
| 2001 | \$2.25 |
| 2000 | \$2.25 |
| 1999 | \$2.25 |
| 1998 | \$2.25 |
| 1997 | \$2.25 |
| 1996 | \$2.25 |
| 1995 | \$2.25 |
| 1994 | \$2.25 |
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| 1963 | \$2.25 |
| 1962 | \$2.25 |
| 1961 | \$2.25 |
| 1960 | \$2.25 |
| 1959 | \$2.25 |
| 1958 | \$2.25 |
| 1957 | \$2.25 |
| 1956 | \$2.25 |
| 1955 | \$2.25 |
| 1954 | \$2.25 |
| 1953 | \$2.25 |
| 1952 | \$2.25 |
| 1951 | \$2.25 |
| 1950 | \$2.25 |

Sovran Financial Corporation reported net income of \$154 million in 2006 (tax rate 40%). Its capital structure included:

Common Stock

| | |
|---------|--|
| Jan. 1 | 40 million common shares outstanding |
| Mar. 1 | 2 million new shares were sold |
| June 17 | A 10% stock dividend was distributed |
| Jul. 1 | 8 million shares were re-purchased as treasury stock |

(The average market price of the common shares during 2006 was \$25 per share.)

Preferred Stock, Nonconvertible

January 1–December 31: 5 million 8%, \$10 par, shares

Executive Stock Options

Options granted in 2004, exercisable for 5 million common shares* at an exercise price of \$20 per share

Convertible Bonds

10%, \$300 million face amount issued in 2003, convertible into 12 million common shares*

Preferred Stock, Convertible

10 million, 8%, cumulative, \$10 par, shares issued in 2002, convertible into 5 million shares*

Stock Warrants

Warrants granted in 2005, exercisable for 4 million common shares* at an exercise price of \$32.50 per share

Calculations:

The calculations of both basic and diluted EPS are unaffected by the warrants because the effect of exercising the warrants would be antidilutive.

*Adjusted to the amount of the common shares outstanding under the bonds' terms, the preferred stock's conversion rate is 10 million shares for every \$300 million of face amount.

CONVERTIBLE SECURITIES

For convertible securities, though, it is not immediately obvious whether the effect of their conversion would be dilutive or antidilutive because the assumed conversion would affect both the numerator and the denominator of the EPS fraction. We discovered each was dilutive if we either included the effect of the conversion and observing the resulting decline in EPS. But there is an easier way.

To determine whether convertible securities are dilutive and should be included in a diluted EPS calculation, we can compare the incremental effect of the conversion (expressed as a fraction) with the EPS fraction before the effect of any convertible security is considered. This, of course, is our basic EPS. Recall from Illustration 19-11 that basic EPS is \$1.80.

For comparison, we determine the "earnings per incremental share" of the two convertible securities:

Conversion of Bonds

$$\begin{aligned} &\text{After-tax} \\ &\text{Interest savings} \\ &+ \$300(40\% - \$30) = \frac{\$180}{2} = \$90 \\ &+ 12 \\ &\text{Conversion} \\ &\text{of bonds} \end{aligned}$$

Conversion of Preferred Stock

$$\begin{aligned} &\text{Preferred} \\ &\text{dividends} \\ &+ \$8 \\ &= \$8 \\ &\text{Conversion of} \\ &\text{preferred shares} \end{aligned}$$

The incremental effect of conversion of the convertible bonds is the savings that would result from the additional common shares from conversion.

The incremental effect of conversion of the preferred stock is the dividends that would not be paid divided by the additional common shares from conversion.

PERSPECTIVE

Earnings per share receives more attention in the United States than in most other countries. In countries that do require EPS disclosures, requirements differ widely. For instance, earnings for the numerator of the EPS calculation are defined in the United States as earnings available for common shareholders, and separate calculations are required for ordinary income and net income when differences exist. In some countries, though, earnings is defined as continuing income from operations only (Norway, for example).

In the United States, basic and diluted EPS are reported. Other countries have similar requirements but define the two calculations differently than the United States (that is, the potential common shares included are different). Japan requires basic and diluted EPS to be reported in disclosure notes. Some countries (Switzerland), for instance, require no EPS disclosure at all, but disclosure may be provided anyway.

If the incremental effect of a security is higher than basic EPS, it is antidilutive. That is not the case in our illustration.

ORDER OF ENTRY FOR MULTIPLE CONVERTIBLE SECURITIES

A convertible security might seem to be dilutive when looked at individually but, in fact, may be antidilutive when included in combination with other convertible securities. This is because the order of entry for including their effects in the EPS calculation determines by how much, or even whether, EPS decreases as a result of their assumed conversion. Because our goal is to reveal the maximum potential dilution that might result, theoretically we should calculate diluted EPS using every possible combination of potential common shares to find the combination that yields the lowest EPS. But that's not necessary.

We can test the earnings per incremental share we calculated to determine the sequence of including securities' effects in the calculation. We include the securities in reverse order, beginning with the lowest incremental effect (that is, most dilutive), followed by the next lowest, and so on. Thus, in fact, the order in which we include the securities is our expanding dilution.

ADDITIONAL CONSIDERATION

Actually, the order of inclusion made no difference in our example, but would in many instances. For example, suppose the preferred stock had been convertible into 4.3 million shares, rather than 5 million shares. The incremental effect of its conversion would have been

| | |
|-------------------------------|--------------------------------|
| Conversion of Preferred Stock | Preferred dividends |
| | + \$8 |
| | 4.3 |
| | \$ 1.86 |
| | Conversion of preferred shares |

On the surface, the effect would seem to be dilutive because \$1.86 is less than \$1.89, basic EPS. In fact, if this were the only convertible security, it would be dilutive. But after the convertible bonds are assumed converted first, the assumed conversion of the preferred stock would be antidilutive.

With Conversion of Bonds

| Net Income | Preferred dividends | Preferred dividends | After-tax interest | After-tax earnings | | |
|---------------------------|---------------------|-----------------------|----------------------------|---------------------------|-------|---------|
| \$ 54 | \$4 | \$8 | \$ 5.91 | 40% (\$30) | \$ 60 | \$1.777 |
| 60 (10) shares | 2.5 (10) New shares | 8 (5) Treasury shares | 15 (2) Exercise of options | 2 (1) Conversion of bonds | 90 | |
| Stock dividend adjustment | | | | | | |

Remember, the incremental effect of the conversion of the preferred stock is \$1.86, which is less than the \$1.89 basic EPS. However, after the conversion of the bonds, the incremental effect of the conversion of the preferred stock is \$1.86, which is greater than the \$1.89 basic EPS.

A shareholder's security interest in a corporation is a claim when looked at in isolation. It may be a claim on assets when included in combination with other convertible securities.

With Conversion of Preferred Stock

| Post income
split | Preferred
dividend
\$6 | Preferred
dividend
\$8 | After-tax
interest savings | Preferred
dividend | |
|------------------------------|--------------------------------|------------------------------|-------------------------------|--|-------|
| \$156 | \$6 | \$8 | \$30 (40% \$75) | \$170 | \$ 70 |
| 60
shares | 12 1/2%
Preferred
shares | 8 1/2%
Treasury
shares | 1000
upside
potential | 1000
convertible
preferred
shares | |
| ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| stock dividend
adjustment | | | | | |

Although the after-tax effect of the convertible preferred stock is \$61, it is lower than basic EPS \$ 89 when included in the calculation after the convertible bonds the effect is additive. EPS increases.

CONCEPT REVIEW EXERCISE

BASIC AND DILUTED EPS

At December 31, 2006, the financial statements of Leverage Clothing Corporation included the following:

| | |
|--|--------------------|
| Net income for 2006 | \$500 million |
| Common stock, \$7 per share | |
| Shares outstanding on January 1 | 180 million shares |
| Shares retired for cash on February 1 | 24 million shares |
| Shares sold for cash on September 1 | 78 million shares |
| 2-for-1 split on July 23 | |
| Preferred stock, 10%, \$50 per cumulative, nonconvertible | \$ 70 million |
| Preferred stock, 8%, \$50 per cumulative, convertible (into 4 million shares of common stock) | \$100 million |
| Common stock warrants outstanding for 4 million shares of common stock; the exercise price is \$15 | |
| Bonds payable, 12 1/2%, convertible into 20 million shares of common stock | \$200 million |

Additional data:

The market price of the common stock averaged \$20 during 2006.

The convertible preferred stock and the bonds payable had been issued as par in 2004. The tax rate for the year was 40%.

Required

Compute basic and diluted earnings per share for the year ended December 31, 2006.

SOLUTION

(amounts in millions, except per share amounts)

Basic EPS

| Net income | Preferred dividend | Preferred dividend | | |
|------------------|------------------------|--------------------|-------|-------|
| \$500 | \$70 | \$80 | \$40: | \$ 25 |
| 50 | 24 1/2% | 2 1/2% | 262 | |
| Shares at Jan. 1 | Retired shares | New shares | | |
| ↑ | ↑ | ↑ | | |
| | Stock split adjustment | | | |

Diluted EPS

| Net Interest | Preferred dividends | Preferred dividends | After-tax interest savings | |
|------------------------|---------------------|---------------------|----------------------------|---------------------|
| \$800 | \$75 | \$80 | \$25 | \$550 |
| 50 2.00 | 75 1.125 2.00 | 80 1 | 25 40% 15.25 | 550 82 1.2 |
| Shares at Jan. 1 | Preferred shares | New shares | Excess of warrants | Conversion of bonds |
| Stock split adjustment | | | | |
| 100 2.00 | 150 1.125 | 160 1 | 50 40% 20 | 550 82 1.2 |
| Excess of war. units | | | | |
| 100 2.00 | 150 1.125 | 160 1 | 50 40% 20 | 550 82 1.2 |
| 100 2.00 | 150 1.125 | 160 1 | 50 40% 20 | 550 82 1.2 |
| 100 2.00 | 150 1.125 | 160 1 | 50 40% 20 | 550 82 1.2 |

Dilution

| Conversion of Bonds | Conversion of 10% Preferred Stock |
|----------------------------|-----------------------------------|
| After-tax interest savings | Preferred dividends |
| \$25 40% (\$25) | \$8 |
| 20 | \$2.00 |
| Conversion of bonds | Conversion of preferred |
| 100 2.00 | 150 1.125 |
| 100 2.00 | 150 1.125 |
| 100 2.00 | 150 1.125 |
| 100 2.00 | 150 1.125 |

Additional EPS Issues

CONTINGENTLY ISSUABLE SHARES

Sometimes an agreement specifies that additional shares of common stock will be issued, contingent on the occurrence of some future circumstance. For instance, in the disclosure note reproduced in Graphic 19-3, **Hunt Manufacturing Co.** reported contingent shares in connection with its acquisition of **Keemy Manufacturing Company**.

• LO1

Note 12: Acquisitions (in part)

The Company, in its 1998 Form 10-K, reports that, in connection with its acquisition of Keemy Manufacturing Company, it issued 100,000 shares of restricted common stock with a value of \$10 million. The Keemy Manufacturing Company shareholders received 100,000 shares of common stock in exchange for their shares of Keemy Manufacturing Company. The purchase agreement also provided that the Company will issue an additional 100,000 shares of common stock in the future if a certain level of income is achieved.

GRAPHIC 19-3

Contingently Issuable Shares—Hunt Manufacturing Company

At times, contingent shares are issuable to shareholders of an acquired company, certain key executives, or others in the event a certain level of performance is achieved. Contingent performance may be a desired level of income, a target stock price, or some other measurable activity level.

When calculating diluted EPS, contingently issuable shares are considered to be outstanding in the computation of diluted EPS if the target performance level already is being met (assuming in return or issuing basis) until the end of the contingency period. For example, 100 shares will be issued at a future date if a certain level of income is achieved and that level of income

contingently issuable securities are included in the calculation of the computation of diluted EPS.

If a level of income must be achieved before the shares will be issued, and income already is that amount, the shares are simply added to the denominator.

or more was already earned this year, those additional shares are simply added to the denominator of the diluted EPS fraction.

For a third condition, consider the following illustration and assume that 1 million additional shares will be issuable if earnings in the following year (2007) are at least \$50 million or more. Here, that net income in 2006 was \$54 million, so no additional shares would be considered in computing the computation of diluted EPS by simply adding 1 million additional shares to the denominator of the EPS fraction. However, the 2007 condition (\$50 million net income or more) has not been met yet since it's only year 2006. But because that level of income was achieved in 2006, the presumption is likely to be earned in 2007 as well.

Assumed Issuance of Contingently Issuable Shares (diluted EPS):

No adjustment to the numerator

3

Add 1000000 shares

On the other hand, if the target income next year is \$60 million, the contingent shares would simply be ignored in our calculation.

SUMMARY OF THE EFFECT OF POTENTIAL COMMON SHARES ON EARNINGS PER SHARE

You have seen that under certain circumstances, securities that have the potential of reducing earnings per share by becoming common stock are assumed already to have become common stock for the purpose of calculating EPS. The table in Graphic 19-4 summarizes the circumstances under which the dilutive effect of these securities is reflected in the calculation of basic and diluted EPS.

Graphic 19-4

When Potential Common Shares Are Reflected in EPS

| Potential Common Shares | Is the Dilutive Effect Reflected in the Calculation of EPS? | |
|--|---|------------------|
| | Basic EPS | Diluted EPS |
| • Stock options (or warrants, rights) | no | yes |
| • Convertible securities (bonds, notes, preferred stock) | no | yes |
| • Contingently issuable shares | no | yes ¹ |

¹The effect is not reflected for any security that either is antidilutive or whose shares are contingent upon some level of performance not yet achieved.

Graphic 19-5 summarizes the specific effects on the diluted EPS fraction when the dilutive effect of a potentially dilutive security is reflected in the calculation.

ACTUAL CONVERSIONS

When calculating EPS in our example, we “pretended” the convertible bonds had been converted at the beginning of the year. What if they actually had been converted, not even on November 1? Interestingly, diluted EPS would be precisely the same. Here’s why:

- The actual conversion would cause an actual increase in shares of 12 million on November 1. These would be time-weighted so the denominator would increase by 12 (%). Also, the numerator would be higher because net income actually would be increased by the after-tax interest saved on the bonds for the last two months, $\$30 - 40\% (\$30) \times (2\%)$. Be sure to note that this would not be an adjustment to the EPS calculation. Instead, net income would actually have been higher by $[\$30 - 40\% (\$30)] \times (2\%) = \$3$. That is, reported net income would have been \$57 rather than \$54.

The effect of the actual conversion would be the same as if all convertible bonds had been converted at the beginning of the year. The denominator would increase by 12 (%), and the numerator would increase by \$3.

Modification to the Diluted EPS Fractions

| Potential Common Shares | Numerator | Denominator |
|---|--|--|
| • stock options + warrants rights | None | 1. the after-tax income available to common shareholders
2. the shares repurchased by the company |
| • convertible bonds or notes | After-tax interest income that would have been received if the debt had been converted | 1. the shares that would have been converted to common stock
2. the shares repurchased by the company |
| • convertible preferred stock | 1. the before-tax dividend that would have been received if the preferred stock had been converted | 1. the shares that would have been converted to common stock
2. the shares repurchased by the company |
| • noncumulatively convertible shares available at the beginning of the reporting period when antidilution adjustments are not necessary | None | 1. shares that are convertible
2. the shares repurchased by the company |
| • noncumulatively convertible shares available when antidilution adjustments are not necessary during the reporting period | None | 1. shares that are convertible
2. the shares repurchased by the company |

GRAPHIC 19-5

How Potential Common Shares Are Reflected in a Diluted EPS Calculation

the beginning of the year or when potential common shares were issued, whichever is later (time-weight the increase from if purchased, assumed or converted or not issued).

2. We would assume conversions for the period before November 1 because they were potentially dilutive during that period. The 12 million shares assumed outstanding from January 1 to November 1 would be time-weighted for that 10-month period (2/3). Also, the numerator would be increased by the after-tax interest assumed saved on the bonds for the first 10 months: $[\$30 - 40\% (\$30)] \times (2/3)$. Notice that the incremental effect on diluted EPS is the same either way.

Not Actually Converted

Converted on November 1

| Assumed after-tax interest savings | Actual after-tax interest savings | Assumed after-tax interest savings |
|------------------------------------|-----------------------------------|------------------------------------|
| $+ \$30 - 40\% (\$30)$ | $+ \$30 - 40\% (\$30)$ | $+ \$30 - 40\% (\$30)$ |
| $\div 3$ | $\div 3$ | $\div 3$ |
| $+ 12$ | $+ 12$ | $+ 12$ |
| Assumed conversion of bonds | Actual conversion of bonds | Assumed conversion of bonds |

EPS would be precisely the same whether the conversion occurred on November 1 or January 1.

Graphic 19-6 shows the disclosure note Klorix Company reported after the conversion of convertible notes during the year.

Note 7. Significant Accounting Policies—Earnings Per Common Share (in part): A \$9,000,000 convertible debenture was converted to 750,000 shares of common stock on August 1. Earnings per common share and weighted-average shares outstanding reflect this conversion as if it were effective from the beginning of the period.

GRAPHIC 19-6

Conversion of Notes—The Klorix Company

OPTIONS OUTSTANDING FOR ONLY PART OF THE PERIOD

Options outstanding for only part of the reporting period are included in the denominator on a time-weighted basis. For example, if 100,000 were issued on April 1, the denominator would include the appropriate incremental share of 75,000. Likewise, options expired in April 30 would be subtracted from the denominator for appropriate incremental shares. If 25,000 primary options were exercised in April, the weighted-average share would include the appropriate incremental share of 25,000 for the period prior to actual exercise. The weighted-average denominator would be the appropriate actual shares issued for the period after the exercise.

FINANCIAL STATEMENT PRESENTATION OF EARNINGS PER SHARE DATA

■ 10.12

Recall that a major objective of financial statement disclosures is to help users obtain a presentation within the statement of income.

Income from Continuing Operations
Discontinued Operations
Extraordinary Items
Net Income

When the income statement includes extraordinary items, the same are reported along EPS data for basic and diluted. EPS also is reported separately for income from continuing operations and net income. For clarity, however, for discontinued operations and extraordinary items would be used either on the face of the income statement or in the notes or supplemental statement. Presentation on the face of the income statement is dictated by the nature of the statements of Federated Department Stores from its 2012 annual report are included in Exhibit 19.

GRAPHIC 19-7
EPS Disclosure:
Federated Department
Stores

| | 52 Weeks Ended February 2 | | |
|---|--------------------------------------|--------|--------|
| | \$ in millions except per share data | | |
| | 2003 | 2002 | 2001 |
| Income from continuing operations | \$635 | \$58 | \$112 |
| Discontinued operations, net of tax | 80 | 747 | 405 |
| Extraordinary item, net of tax | | 10 | |
| Net income (loss) | \$715 | \$676 | \$517 |
| Basic earnings (loss) per share: | | | |
| Income from continuing operations | \$3.23 | \$2.65 | \$4.0 |
| Discontinued operations | .93 | 4.07 | 4.7 |
| Extraordinary item | | .05 | |
| Net earnings (loss) | \$4.16 | \$6.77 | \$8.70 |
| Diluted earnings (loss) per share: | | | |
| Income from continuing operations | \$3.21 | \$2.59 | \$3.9 |
| Discontinued operations | .91 | 3.92 | 4.65 |
| Extraordinary item | | .05 | |
| Net income (loss) | \$4.12 | \$6.56 | \$8.55 |

Basic and diluted EPS data should be reported on the face of the income statement for reporting periods presented in the comparative statements. Businesses without only common shares present basic EPS only. Disclosure notes should provide additional details such as including:

1. A reconciliation of the numerator and denominator used in the basic EPS computations to the numerator and the denominator used in the diluted EPS

Earnings per Share Reconciliation:

| | Income
(Numerator) | Share
Denominator | Per Share
Amount |
|-----------------------------------|-----------------------|----------------------|---------------------|
| Net income | \$ 14 | | |
| Preferred dividends | 2 | | |
| Basic earnings per share | \$ 12 | 10 | \$1.02 |
| Stock options | None | | |
| Convertible debt | 5 | 5 | |
| Convertible preferred stock | 5 | 5 | |
| Diluted earnings per share | \$ 65 | 95 | \$1.72 |

Note: The numerator for diluted earnings per share is \$14 - \$2 + \$55 = \$67. The denominator for diluted earnings per share is 10 + 5 + 5 = 20.

GRAPHIC 19-8

Reconciliation of Basic
EPS Computations
to Diluted EPS
Computations

computations. An example of this is presented in Graphic 19-8 using the situation described in Illustration 19-11.

- Any adjustments to the numerator for preferred dividends.
- Any potentially common shares that were included because they were antidilutive.
- Any anti-dilutive shares that were excluded because their inclusion would materially affect earnings per share.

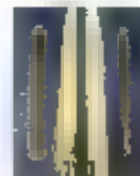
ADDITIONAL CONSIDERATION

It is possible that potential common shares would have a dilutive effect on one component of net income but an antidilutive effect on another. That is, the inclusion of the potential common shares has a dilutive effect on income from continuing operations,⁴ the effect should be included in all calculations of diluted earnings per share. In other words, the same number of potential common shares used in computing a diluted per share amount for income from continuing operations is used in computing all other diluted per-share amounts, even when amounts are antidilutive to one individual per-share amount.

Make sure you pay lots of attention to the math behind earnings per share. If the earnings figure were incorrect, you should immediately look for a mistake or mistake in the telling you just what is and is not included in the calculation.

DECISION MAKERS' PERSPECTIVE

We noted at the beginning of the chapter that investors and creditors pay a great deal of attention to earnings per share information. Because of the importance analysts attach to earnings announcements, companies are particularly eager to meet earnings expectations. As we first noted in Chapter 4, they desire this combination as a response to a recent trend, especially among technology firms, to report pro forma earnings per share. What exactly are pro forma earnings? Unfortunately there is no answer to that question. Even today, pro forma earnings are actual (GAAP) earnings reduced by any expenses the reporting company feels are unusual and should be excluded. Always, though the pro forma result of a company looks better than the



real results. Broadcom Corporation, a provider of broadband and network products, reported 2003 pro forma earnings of \$0.44 per share. However on a GAAP basis, it actually had a loss of \$7.29 per share. This is not an isolated example.

When companies report pro forma results, they argue they are trying to help investors by giving them numbers that more accurately reflect their normal business activities, because they exclude unusual expenses. Analysts should be skeptical, though. Because of the purely discretionary nature of pro forma reporting and several noted instances of abuse, analysts should, at a minimum, find out precisely what expenses are excluded and what the actual GAAP numbers are.

Another way management might enhance the appearance of EPS numbers is by managing the denominator of the calculation. Reducing the number of shares increases earnings per share. Some companies judiciously use share buyback programs to manipulate the number of shares and therefore EPS. There is nothing inherently wrong with share buybacks and, as we noted in Chapter 18, they can benefit shareholders. The motivation for buybacks, though, can sometimes be detected in the year-to-year pattern. A *Fortune* article asserts that, "One way Ray Blue has kept the fabulous EPS growth going has been by buying back shares of its own stock. Since 1993, IBM has spent a stunning \$34.1 billion to shrink shares outstanding. Indeed, \$34 billion is more than IBM reported a net income of \$31.3 billion over the same period."²³

One way analysts use EPS data is in connection with the price-earnings ratio. This ratio is simply the market price per share divided by the earnings per share. It measures the market's perception of the quality of a company's earnings by indicating the price multiple the capital market is willing to pay for the company's earnings. Presumably, this ratio reflects the information provided by a financial statement in that the market price reflects analysts' perceptions of the company's growth potential, stability, and relative risk. The price-earnings ratio relates these performance measures with the external judgment of the marketplace concerning the value of the firm.

The ratio measures the quality of earnings in the sense that it represents the market's perception of future earnings as indicated by current earnings. Caution is called for in comparing price-earnings ratios. For instance, a ratio might be low, not because earnings expectations are low, but because of abnormally elevated current earnings. Or the ratio might be high, not because earnings expectations are high, but because the company's current earnings are temporarily depressed. Similarly, an analyst should be aware of differences among accounting methods used to measure earnings from company to company when making comparisons.

Another ratio frequently calculated by shareholders and potential shareholders is the dividend payout ratio. This ratio expresses the percentage of earnings that is distributed to shareholders as dividends. The ratio is calculated by dividing dividends per common share by the earnings per share.

The ratio provides an indication of a firm's reinvestment strategy. A low payout ratio suggests that a company is retaining a large portion of earnings for reinvestment for new products and other operating needs. Low payouts often are found in growth industries and high payouts in mature industries. Often, though, the ratio is merely a reflection of financial strategy concerning the mix of internal versus external financing. The ratio also is considered by investors who, for tax or other reasons, prefer current income over market appreciation.

CONCEPT REVIEW EXERCISE

ADDITIONAL EPS ISSUES

At December 31, 2006, the financial statements of Robinson General, Inc., included the following:

Net income for 2006 (including a net-of-tax extraordinary loss of \$10 million) \$180 mil.
Common stock \$1 par

Shares outstanding on January 1

44 million

The share price was \$25 and \$28 at the beginning and end of the year, respectively.

Additional data:

- At January 1, 2006, \$200 million of 10% convertible notes were outstanding. The notes were converted on April 1 into 16 million shares of common stock.
- An agreement with company executives calls for the issuance of up to 12 million additional shares of common stock in 2007 and 2008 based on the Balmain's net income in those years. Executives will receive 2 million shares at the end of each of those two years if the company's stock price is at least \$20 and another 4 million shares each year if the stock price is at least \$29.50.

The tax rate is 40%.

Required:

Compute basic and diluted earnings per share for the year ended December 31, 2006.

(amounts in millions, except per share amounts)

SOLUTION

Basic EPS

| | | |
|------------|------------|----------|
| Net income | | |
| \$ 61 | | \$ 80 |
| 44 | + 16 | 58 |
| Shares | Actual | |
| at Jan. 1 | conversion | of notes |

Diluted EPS

| | | | | |
|------------|------------|--------------------|-----------|--------|
| Net income | | Assumed after-tax | | |
| \$ 61 | | interest savings | | |
| 44 | | (\$20 × 40% = \$8) | | \$ 63 |
| Shares | 16 M | 8 M | 60 | \$2.86 |
| at Jan. 1 | Actual | Assumed | Effect on | |
| | conversion | conversion | share- | |
| | of notes | of notes | price | |

Convertible Notes: Notice that the effect on diluted EPS would be precisely the same whether the convertible notes were actually converted or not.

Converted on April 1:

| | | | | |
|----------------------|------------|----------------------|-----------|--------|
| Net income including | | Assumed after-tax | | |
| actual after-tax | | interest savings | | |
| \$ 80 | | + (\$20 × 40% = \$8) | | \$ 88 |
| 44 | + 16 | 16 | 60 | \$2.93 |
| Shares | Actual | Assumed | Effect on | |
| at Jan. 1 | conversion | conversion | share- | |
| | of notes | of notes | price | |

Not Actually Converted

| | | | | |
|--------------------|------------|----------------------|-----------|--------|
| Net income without | | Assumed after-tax | | |
| actual after-tax | | interest savings | | |
| \$ 61 | | + (\$20 × 40% = \$8) | | \$ 63 |
| 44 | + 16 | 60 | | \$2.86 |
| Shares | Actual | Assumed | Effect on | |
| at Jan. 1 | conversion | conversion | share- | |
| | of notes | of notes | price | |

\$ 88 - \$ 8 = 40% (\$20) = \$ 80

\$ 61 - \$ 8 = 40% (\$20) = \$ 53

Contingently Issuable Shares

Because the conditions are met for issuing 4 million shares (2 million for each of two years), those shares are simply added to the denominator of diluted EPS. The current share price

\$28 is projected to remain the same throughout the contingency period, so the other 2 million shares (6 million for each of two years) are excluded.

Income Statement Presentation:

To determine the per share amounts for income before extraordinary items, we substitute that amount for net income in the numerator (in this case, that means adding back the \$50 million extraordinary loss).

| | Basic | Diluted |
|-----------------------------------|----------------|----------------|
| | \$ 83.70
56 | \$ 83.70
64 |
| Earnings per Share: | Basic* | Diluted |
| Income before extraordinary items | \$3.39 | \$3.02 |
| Extraordinary loss | (.18) | (.16) |
| Net income | \$3.21 | \$2.86 |

* If diluted EPS is required on the face of the income statement, Basic EPS is reported in the EPS column in the disclosure notes below.

Disclosure Note:

Earnings per Share Reconciliation

| | Income
(Numerator) | Shares
(Denominator) | Per Share
Amount |
|-----------------------------------|-----------------------|-------------------------|---------------------|
| Basic Earnings per Share | | | |
| Income before extraordinary items | \$190 | 56 | \$3.39 |
| Extraordinary loss | (10) | 56 | (.18) |
| Net income | \$180 | 56 | \$3.21 |
| Convertible debt | 9 | 8 | |
| Contingently issuable shares | — | 8 | |
| Diluted Earnings per Share | | | |
| Income before extraordinary items | \$193 | 64 | \$3.02 |
| Extraordinary loss | (10) | 64 | (.16) |
| Net income | \$183 | 64 | \$2.86 |



FINANCIAL REPORTING CASE SOLUTION

- How can a compensation package such as this serve as an incentive to Ms. Veres? (p. 95) Stock-based plans like the restricted stock and stock options that Ms. Veres is receiving are designed to motivate recipients. If the shares awarded are restricted so that Ms. Veres cannot sell the shares during the restriction period, she has an incentive to remain with the company until rights to the shares vest. Likewise, stock options can be made exercisable only after a specified period of employment. An additional incentive of stock-based plans is that the recipient will be motivated to take actions that will maximize the value of the shares.
- Ms. Veres received a "grant of restricted stock." How should NEV account for the grant? (p. 952) The compensation associated with restricted stock is the market price of the restricted shares of the same stock. NEV will accrue this amount as compensation expense over the service period from the date of grant to when restrictions are lifted.
- Included were stock options to buy more than 800,000 shares. How will the options affect NEV's compensation expense? (p. 954) Similar to the method used for restricted stock, the value of the options is recorded as compensation over the service period, usually the vesting period.
- How will the presence of these and other similar stock options affect NEV's earnings per share? (p. 970) If outstanding stock options were exercised, the resulting increase in shares would reduce or dilute EPS. If we don't take into account the dilutive effect of the share increase, we might mislead investors and creditors. So, in addition to basic EPS, we also calculate diluted EPS to include the dilutive effect of options and other potential common shares.

This means calculating EPS as if the potential increase in shares already has occurred (even though it hasn't yet). ■

THE BOTTOM LINE

1. We measure the fair value of stock issued in a restricted stock award plan and expense it over the service period, usually from the date of grant to the vesting date.
2. Similarly, we estimate the fair value of stock options at the grant date and expense it over the service period, usually from the date of grant to the vesting date. Fair value is estimated at the grant date using an option-pricing model that considers the exercise price and expected term of the option, the current market price of the underlying stock and its expected volatility, expected dividends, and the expected risk-free rate of return.
3. For stock appreciation rights, the award is considered to be equity if the employee can elect to settle in shares of stock rather than cash. If the employee can elect to receive cash, the award is considered to be a liability. In either case, the amount of compensation is the fair value of the SARs (usually the same as a similar stock option). We continuously adjust that amount to reflect changes in fair value until the compensation is finally paid unless the award is considered equity in which case, we measure fair value once—at the grant date.
4. Employee share purchase plans allow employees to buy company stock under convenient or favorable terms. Most such plans are considered compensatory and require any discount to be recorded as compensation expense.
5. A company has a simple capital structure if it has no outstanding securities that could potentially dilute earnings per share. For such a firm, EPS is simply earnings available to common shareholders divided by the weighted-average number of common shares outstanding. When potential common shares are outstanding, the company is said to have a complex capital structure. In that case, two EPS calculations are required. Basic EPS assumes no dilution. Diluted EPS assumes maximum potential dilution.
6. EPS calculations are based on the weighted-average number of shares outstanding during the period. Any new shares issued during the period are time-weighted by the fraction of the period they were outstanding and then added to the number of shares outstanding for the period.
7. For a stock dividend or stock split, shares outstanding prior to the stock distribution are retroactively restated to reflect the increase in shares. When shares are reacquired, as treasury stock or to be retired, they are time-weighted for the fraction of the period they were not outstanding prior to being subtracted from the number of shares outstanding during the reporting period.
8. The numerator in the EPS calculation should reflect earnings available to common shareholders. So, any dividends on preferred stock outstanding should be subtracted from reported net income. This adjustment is made for cumulative preferred stock whether or not dividends are declared that period.
9. For diluted EPS, it is assumed that stock options, rights, and warrants are exercised at the beginning of the period (or at the time the options are issued, if later) and the cash proceeds received are used to buy back, as treasury stock, as many of those shares as can be acquired at the average market price during the period.
10. To incorporate convertible securities into the calculation of diluted EPS, the conversion is assumed to have occurred at the beginning of the period (or at the time the convertible security is issued, if later). The denominator of the EPS fraction is adjusted for the addition of common shares assumed and the numerator is increased by the interest (after-tax) or preferred dividends that would have been awarded in the event of conversion.
11. Contingently issuable shares are considered outstanding in the computation of diluted EPS when they will later be issued upon the mere passage of time or because of conditions that currently are met.
12. EPS data, both basic and diluted, must be reported for (a) income before any separately reported items, (b) the separately reported items (discontinued operations and extraordinary gains and losses), and (c) net income. Disclosures also should include a recapitulation of the numerator and denominator used in the computations. ■

OPTION PRICING THEORY

Option values have two essential components: (1) intrinsic value and (2) time value.

Intrinsic Value

Intrinsic value is the benefit the holder of an option would realize by exercising the option rather than buying the underlying stock directly. An option that permits an employee to buy \$25 stock for \$10 has an intrinsic value of \$15. An option whose exercise price equals or exceeds the market price of the underlying stock has zero intrinsic value.

TIME VALUE

In addition to their intrinsic value, options also have a time value due to the fact that (a) the holder of an option does not have to pay the exercise price until the option is exercised, and (b) the market price of the underlying stock may yet rise and create additional intrinsic value. All options have time value so long as time remains before expiration. The longer the time until expiration, other things being equal, the greater the time value. For instance, the option described above with an intrinsic value of \$15, might have a fair value of, say, \$22 if time still remains until the option expires. The \$7 difference represents the time value of the option. Time value can be subdivided into two components: (1) the effects of time value of money and (2) volatility value.

TIME VALUE OF MONEY

The time value of money component arises because the holder of an option does not have to pay the exercise price until the option is exercised. Instead, the holder can invest funds elsewhere while waiting to exercise the option. For measurement purposes, the time value of money component is assumed to be the rate of return available on risk-free U.S. Treasury securities. The higher the time value of money, the higher the value of being able to delay payment of the exercise price.

When the underlying stock pays no dividends, the time value of money component is the difference between the exercise price (a future amount) and its discounted present value. For example, if the exercise price is \$30, and the present value (discounted at the risk-free rate) is \$24, the time value of money component is \$6. On the other hand, if the stock pays a dividend (or is expected to during the life of the option), the time value of money is lower. The value of being able to delay payment of the exercise price would be partially offset by the cost of forgoing the dividend in the meantime. For instance, if the stock underlying the options just described were expected to pay dividends and the discounted present value of the expected dividends were \$6, the time value of money component in that example would be reduced from \$6 to \$4.

VOLATILITY VALUE

The volatility value represents the possibility that the option holder might profit from market price appreciation of the underlying stock while being exposed to the loss of only the value of the option, rather than the full market value of the stock. For example, fair value of an option to buy a share at an exercise price of \$30 might be measured as \$7. The potential profit from market price appreciation is conceptually unlimited. And yet, the potential loss from the stock's value failing to appreciate is only \$7.

A stock's volatility is the amount by which its price has fluctuated previously or is expected to fluctuate in the future. The greater a stock's volatility, the greater the potential profit. It usually is measured as one standard deviation of a statistical distribution. Statistically, if the expected annualized volatility is 25%, the probability is approximately 67% that the stock's year-end price will fall within roughly plus or minus 25% of its beginning price. Stated differently, the probability is approximately 33% that the year-end stock price will fall outside that range.

Option-pricing models make assumptions about the likelihood of various future stock prices by making assumptions about the statistical distribution of future stock prices that take into account the expected volatility of the stock price. One popular option pricing model, the

Volatility enhances the likelihood of stock price appreciation.

Black-Scholes model, for instance, assumes a log-normal distribution. This assumption posits that the stock price is as likely to fall by half as it is to double and that large price movements are less likely than small price movements. The higher a stock's volatility, the higher the probability of large increases or decreases in market price. Because the cost of large decreases is limited to the option's current value, but the profitability from large increases is unlimited, an option on a highly volatile stock has a higher probability of a large profit than does an option on a less volatile stock.

Summary

In summary, the fair value of an option is (a) an intrinsic value plus (b) its time value of money component plus (c) its volatility component. The variables that affect an option's fair value and the effect of each are indicated in Graphic 19A-1.

| All Other Factors Being Equal, If the: | The Option Value Will Be: |
|--|---------------------------|
| Exercise price is higher | Lower |
| Term of the option is longer | Higher |
| Market price of the stock is higher | Higher |
| Dividends are higher | Lower |
| Risk- and rate of return is higher | Higher |
| Volatility of the stock is higher | Higher |

Graphic 19A-1
Effect of Variables on
an Option's Fair Value

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 19-1 What is restricted stock? Describe how compensation expense is determined and recorded for a restricted stock award plan.
- Q 19-2 Stock option plans provide employees the option to purchase (a) a specified number of shares of the firm's stock, (b) at a specified price, (c) during a specified period of time. One of the most controversial aspects of accounting for stock-based compensation is how the fair value of stock options should be measured. Describe the general approach to measuring fair value.
- Q 19-3 The Tax Code differentiates between qualified option plans, including incentive plans, and nonqualified plans. What are the major differences in tax treatment between incentive plans and nonqualified plans?
- Q 19-4 The fair value of stock options can be measured to complete two data requirements. What are they?
- Q 19-5 Stock options (and other share-based) plans often specify a performance condition or a market condition that must be satisfied before employees are allowed the benefits of the award. Describe the general approach we use to account for performance-based options and options with market-based conditions.
- Q 19-6 LTV Corporation grants SARs to key executives. Upon exercise, the SARs enable executives to receive either cash or stock equal in value to the sum of the market price of shares over the share price at the date of grant. How should LTV account for these awards?
- Q 19-7 What is a simple capital structure? How is EPS determined for a company with a simple capital structure?
- Q 19-8 When calculating the weighted average number of common shares, how are stock dividends and stock splits treated? Compare this treatment with that of additional shares sold for cash in the year.
- Q 19-9 Blake Distributors had 100,000 common shares outstanding at the beginning of the year, January 1. On May 15, Blake distributed a 7% stock dividend. On August 1, 200 shares were retired. What is the weighted average number of shares for calculating EPS?
- Q 19-10 Why are preferred dividends deducted from net income when calculating EPS? Are there circumstances when this deduction is not made?
- Q 19-11 Distinguish between basic and diluted EPS.
- Q 19-12 The treasury stock method is used to incorporate the dilutive effect of stock options, stock warrants, and similar securities. Describe this method as it applies to diluted EPS.
- Q 19-13 The potentially dilutive effect of convertible securities is reflected in EPS calculations by the if-converted method. Describe this method as it relates to convertible bonds.

- Q 19-14 How is the potentially dilutive effect of convertible preferred stock reflected in EPS calculations by the if-converted method? How is this different from the way convertible bonds are considered?
- Q 19-15 A convertible security may appear to be dilutive when looked at individually but might be antidilutive when included in conjunction with other convertible securities. How should the order be determined for inclusion of convertible securities in an EPS calculation in regard to including an antidilutive security?
- Q 19-16 Wirescan Electronics has an agreement with certain of its division managers that 50,000 contingently issuable shares will be issued next year in the event operating income exceeds \$2.5 million that year. In what way, if any, is the calculation of EPS affected by these contingently issuable shares assuming this year's operating income was \$1.2 million? \$2.0 million?
- Q 19-17 Howed EPS would be precisely the same whether convertible securities were actually converted or not. Why?
- Q 19-18 What line item would include each of these if the separately reported items such as discontinued operations or extraordinary items, which amounts require per share presentation?
- Q 19-19 In addition to EPS numbers themselves, what additional disclosures should be provided concerning the EPS information?

BRIEF EXERCISES

BE 19-1
Refer to the following exercise.

• LO

BE 19-2
Stock options

• LO2

BE 19-3
Stock options
 forfeiture

• LO2

BE 19-4
Stock options
 exercise

• LO2

BE 19-5
Stock options
 expiration

•

BE 19-6
Performance-based
 options

• LO

BE 19-7
Performance-based
 options

• LO

BE 19-8
Performance-based
 options

• LO

First Link Services granted 8 million of its \$1 par common shares to executives, subject to forfeiture. Employment is terminated within three years. The common shares have a market price of \$6 per share at the grant date. Ignoring taxes, what is the total compensation cost pertaining to the restricted shares? What is the effect on earnings in the year after the shares are granted to executives?

Under its executive stock option plan, National Corporation granted options on January 1, 2006, that permit executives to purchase 12 million of the company's \$1 par common shares within the next six years, but no before December 31, 2006, the vesting date. The exercise price is the market price of the shares on the date of grant, \$17 per share. The fair value of the options, estimated by an appropriate option pricing model, is \$5 per option. No forfeitures are anticipated. Ignoring taxes, what is the total compensation cost pertaining to the stock options? What is the effect on earnings in the year after the options are granted to executives?

Refer to the situation described in BE 19-2. Suppose that unexpected turnover during 2007 caused the forfeiture of 5% of the stock options. Ignoring taxes, what is the effect on earnings in 2007? In 2008?

Refer to the situation described in BE 19-2. Suppose that the options are exercised on April 3, 2009, when the market price is \$57 per share. Ignoring taxes, what journal entry will National record?

Refer to the situation described in BE 19-2. Suppose that the options expire without being exercised. Ignoring taxes, what journal entry will National record?

In October 1, 2006, Farmer Fabrication issued stock options for 100,000 shares to its division managers. The options have an estimated fair value of \$6 each. To provide additional incentives for managerial achievement, the options are not exercisable unless divisional revenue increases by 5% in three years. Farmer initially estimates that it is probable the goal will be achieved. How much compensation will be recorded in each of the next three years?

Refer to the situation described in BE 19-6. Suppose that after one year, Farmer estimates that it is not probable that divisional revenue will increase by 5% in three years. What action will be taken in passing for the options in 2007?

Refer to the situation described in BE 19-6. Suppose that Farmer initially estimates that it is not probable the goal will be achieved, but then after one year, Farmer estimates that it is probable that divisional revenue will increase by 5% by the end of 2008. What action will be taken to account for the options in 2007 and thereafter?

BE 19.2

Options with market value of \$100 million

E 17

BE 19.3

Options issued to employees

E 18

BE 19.4

Options issued to employees

E 19

BE 19.5

Options issued to employees

E 20

BE 19.6

Options issued to employees

E 21

On October 1, 2006, Farmer Fabrication issued stock options for 100,000 shares to a division manager. The options have an estimated fair value of \$6 each. To provide additional assurance for management's achievement, the options are not exercisable unless Farmer Fabrication's stock price increases by 5% in three years. Farmer initially estimates that it is not probable the goal will be achieved. How much compensation will be recorded in each of the next three years?

McDonnell-Meyer Corporation reported net income of \$74 million. The company had 544 million common shares outstanding at January 1 and sold 4 million shares on Feb. 28. As part of an annual share repurchase plan, 6 million shares were repurchased on April 30 for \$47 per share. Calculate McDonnell-Meyer's earnings per share for 2006.

At December 31, 2005 and 2006, Fink & Nivola Corporation had outstanding 800 million shares of common stock and 2 million shares of 5% \$10 par value cumulative preferred stock. No dividends were declared on either the preferred or common stock in 2005 or 2006. Net income for 2006 was \$425 million. The income tax rate is 40%. Calculate earnings per share for the year ended December 31, 2006.

Stock options exercisable at \$50 per share to obtain 24,000 shares of common stock were outstanding during a period when the average market price of the common stock was \$64.00. The dividing market price was \$55. By how many shares will the exercise of these options increase the weighted-average number of shares outstanding when calculating diluted earnings per share?

Almberg Corporation has 800,000 shares of common stock issued and outstanding at January 1. No common shares were issued during the year. On January 1, Almberg issued 300,000 shares of convertible preferred stock. The preferred shares are convertible into 200,000 shares of common stock. During the year Almberg paid \$64,000 cash dividends on the preferred stock. Net income was \$1,500,000. What were Almberg's basic and diluted earnings per share for the year?

EXERCISES

Students with McGraw-Hill's Navigator should have access to these exercises.

An alternate exercise and problem set is available on the text website: www.mhhe.com/spiceland6

E 19.1

Restricted stock award plan

E 19.2

Restricted stock award plan

E 19.3

Restricted stock award plan

E 19.4

Restricted stock award plan

E 19.5

Restricted stock award plan

E 19.6

Restricted stock award plan

E 19.7

Restricted stock award plan

E 19.8

Restricted stock award plan

Allied Paper Products, Inc. offers a restricted stock award plan to its vice presidents. On January 1, 2006, the company granted 10 million of its \$1 par common shares, subject to forfeiture if employment is terminated within two years. The restricted shares have a market price of \$5 per share on the grant date.

Required:

- Determine the total compensation cost pertaining to the restricted shares.
- Prepare the appropriate journal entries related to the restricted stock through December 31, 2007.

On January 1, 2006, Vici Corporation awarded 12 million of its \$5 par common shares to key personnel subject to forfeiture if employment is terminated within three years. On the grant date, the shares have a market price of \$130 per share.

Required:

- Determine the total compensation cost pertaining to the restricted shares.
- Prepare the appropriate journal entry to record the award of restricted shares on January 1, 2006.
- Prepare the appropriate journal entry to record compensation expense on December 31, 2006.
- Prepare the appropriate journal entry to record compensation expense on December 31, 2007.
- Prepare the appropriate journal entry to record compensation expense on December 31, 2008.
- Prepare the appropriate journal entry to record the lifting of restrictions on the shares at December 31, 2008.

Magnetic-Optical Corporation offers a variety of share-based compensation plans to employees. Under its restricted stock award plan, the company in January 2006 granted 4 million of its \$1 par common shares to various division managers. The shares are subject to forfeiture if employment is terminated within three years. The common shares have a market price of \$22.50 per share on the grant date.

Required:

- Determine the total compensation cost pertaining to the restricted shares.
- Prepare the appropriate journal entry to record the award of restricted shares on January 1, 2006.
- Prepare the appropriate journal entry to record compensation expense on December 31, 2006.
- Suppose Magnetic-Optical expects a 10% forfeiture rate on the restricted shares prior to 2008. Determine the total compensation cost assuming the company chooses to follow the elective fair value approach for fixed compensation plans and chooses to anticipate forfeitures at the grant date.

E 19-4
Stock options

• DO

American Optical Corporation provides a variety of share-based compensation plans to its employees. Under its executive stock option plan, the company granted options on January 1, 2006, that permit executives to acquire 4 million of the company's \$5 par common shares within the next five years, but not before December 31, 2007 (the vesting date). The exercise price is the market price of the shares on the date of grant, \$14 per share. The fair value of the 4 million options, estimated by an appropriate option pricing model, is \$3 per option. No forfeitures are anticipated.

Required:

1. Determine the total compensation cost pertaining to the options.
2. Prepare the appropriate journal entry to record the award of options on January 1, 2006.
3. Prepare the appropriate journal entry to record compensation expense on December 31, 2006.
4. Prepare the appropriate journal entry to record compensation expense on December 31, 2007.

E 19-5
Stock options;
forfeiture of options

• DO

On January 1, 2006, Adams Defense Corporation granted 25 million incentive stock options to division managers, each permitting holders to purchase one share of the company's \$1 par common shares within the next six years, but not before December 31, 2012 (the vesting date). The exercise price is the market price of the shares on the date of grant, currently \$10 per share. The fair value of the options, estimated by an appropriate option pricing model, is \$3 per option.

Required:

1. Determine the total compensation cost pertaining to the options on January 1, 2006.
2. Prepare the appropriate journal entry to record compensation expense on December 31, 2006.
3. Unspecified turnover during 2007 causes the forfeiture of 6% of the stock options. Determine the adjusted compensation cost, and prepare the appropriate journal entry(s) on December 31, 2007 and the

E 19-6
Stock options exercise;
forfeitures

• DO

Walton Corporation has an incentive stock option plan for divisional managers. On January 1, 2006, options were granted to 40 million of the company's \$1 par common shares. The exercise price is the market price of the stock on the date of grant, \$14 per share. Options cannot be exercised before January 1, 2008 and expire December 31, 2012. The fair value of the 40 million options, estimated by an appropriate option pricing model, is \$3 per option.

Required:

1. Determine the total compensation cost pertaining to the grant of stock options.
2. Prepare the appropriate journal entry to record compensation expense on December 31, 2006.
3. Prepare the appropriate journal entry to record compensation expense on December 31, 2007.
4. Prepare the appropriate journal entry to record the exercise of 25% of the options on March 31, 2008, when the market price is \$20 per share.
5. Prepare the appropriate journal entry on December 31, 2012, when the remaining options that have vested expire without being exercised.

E 19-7
Stock options

• DO

S&C Cyclotronics manufactures and distributes motorcycle parts and supplies. Employees are offered a variety of share-based compensation plans. Under its nonqualified stock option plan, S&C grants options to key executives on January 1, 2006. The options permit holders to acquire 12 million of the company's \$5 par common shares for \$14 within the next six years, but not before January 1, 2009 (the vesting date). The market price of the shares on the date of grant is \$13 per share. The fair value of the 12 million options, estimated by an appropriate option pricing model, is \$3 per option.

Required:

1. Determine the total compensation cost pertaining to the incentive stock option plan.
2. Prepare the appropriate journal entries to record compensation expense on December 31, 2006, 2007, and 2008.
3. Record the exercise of the options. Half of the options are exercised on May 30, 2009, when the market price is \$14 per share.

E 19-8
Stock appreciation
rights; settlement in
shares

• DO

As part of its stock-based compensation package, International Electronics granted 24 million stock appreciation rights (SARs) to top officers on January 1, 2006. At exercise, holders of the SARs are entitled to receive stock equal in value to the excess of the market price at exercise over the share price at the date of grant. The SARs cannot be exercised until the end of 2009 (vesting date) and expire at the end of 2014. The 24 million shares have a market price of \$40 per share on the grant date. The fair value of the SARs, estimated by an appropriate option pricing model, is \$3 per SAR at January 1, 2006. The fair value is estimated at December 31, 2006, 2007, 2008, 2009, and 2010, as \$4, \$3, \$4, \$2.50, and \$3, respectively. At year-end, the SARs are estimated to remain unexercised through the vesting date.

Required:

1. Prepare the appropriate journal entry to record the award of SARs on January 1, 2006.
2. Prepare the appropriate journal entries pertaining to the SARs on December 31, 2006, 2007, 2008, and 2009.
3. The SARs remain unexercised on December 31, 2010. Prepare the appropriate journal entry on that date.

E 9-9

Stock appreciation
rights cash settlement

• 7

4. The SARs are exercised on June 6, 2011, when the share price is \$56. Prepare the appropriate journal entry on that date.

NOTE: This is a variation of the previous exercise, modified to allow settlement in cash. As part of its stock-based compensation package, International Electronics granted 24 million stock appreciation rights (SARs) to top officers on January 1, 2006. At exercise, holders of the SARs are entitled to receive cash or stock equal in value to the excess of the market price at exercise over the share price at the date of grant. The SARs cannot be exercised until the end of 2009 (vesting date) and expire at the end of 2011. The \$1 per common share has a market price of \$44 per share on the grant date. The fair value of the SARs, estimated by an equity-based option pricing model, is \$3 per SAR at January 1, 2006. The fair value reestimated at December 31, 2006, 2007, 2008, 2009, and 2010, is \$4, \$3, \$4, \$2, and \$3, respectively. All recipients are expected to remain employed through the vesting date.

1. Prepare the appropriate journal entry to record the award of SARs on January 1, 2006.
2. Prepare the appropriate journal entries pertaining to the SARs on December 31, 2006–December 31, 2010.
3. The SARs remain unexercised on December 31, 2010. Prepare the appropriate journal entry on that date.
4. The SARs are exercised on June 6, 2011, when the share price is \$56, and executives choose to receive the market price appreciation in cash. Prepare the appropriate journal entry(ies) on that date.

In order to encourage employees' responsibility in the company's \$1 per common share, Washington Distribution permits any of its employees to buy shares directly from the company through payroll deduction. There are no brokerage fees and shares can be purchased at a 3% discount. During March, employees purchased 30,000 shares at a time when the market price of the shares on the New York Stock Exchange was \$1.75 per share.

5. a. Prepare the appropriate journal entry to record the March purchase of shares under the employee share purchase plan.

E 9-10

Employee share
purchase plan

• 4

For the year ended December 31, 2006, Norstar Industries reported net income of \$655,000. At January 1, 2006, the company has 900,000 common shares outstanding. The following changes in the number of shares occurred during 2006:

| | |
|---------|---|
| Apr. 30 | Sold 60,000 shares in a public offering. |
| May 1 | Retired and contributed 100,000 to a bond |
| June 1 | Issued 72,000 shares as part of the consideration for the purchase of assets from a subsidiary. |

6. a. Compute Norstar's earnings per share for the year ended December 31, 2006.

E 9-11

EPS, stock dividend,
noncumulative
preferred stock

• 10, 11, 12

Handway Pictures' balance sheet at December 31, 2005, included the following:

| Shares issued and outstanding: | | |
|--------------------------------|---------|-------------|
| Common stock | 250,000 | \$600,000 |
| Nonconvertible preferred stock | 500,000 | \$1,000,000 |

On July 27, 2006, Handway issued a 25% stock dividend on its common stock. On December 12 it paid \$50,000 cash dividends on the preferred stock. Net income for the year ended December 31, 2006, was \$700,000.

7. a. Compute Handway's earnings per share for the year ended December 31, 2006.

At December 31, 2005, Albrecht Corporation has outstanding 371,400 shares of common stock and 6,000 shares of 9.5%, \$100 par value cumulative noncumulative preferred stock. On May 1, 2006, Albrecht sold for cash 12,000 shares of its common stock. No cash dividends were declared for 2006. For the year ended December 31, 2006, Albrecht reported net loss of \$114,000.

8. a. Calculate Albrecht's net loss per share for the year ended December 31, 2006.

E 9-12

EPS, net loss,
noncumulative
preferred stock
shares sold

• 10, 11

The Alford Group had 50,000 shares of common stock outstanding at January 1, 2006. The following activities affected outstanding shares during the year. There are no potential convertible shares outstanding.

| | |
|---------|--|
| 2006 | |
| Feb. 28 | Purchased 6,000 shares of treasury stock. |
| Oct. 31 | Sold the treasury shares purchased on February 28. |
| Nov. 30 | Issued 24,000 new shares. |
| Dec. 31 | Net income for 2006 is \$400,000. |

E 9-13

EPS, common stock,
new shares, stock
dividends, noncumulative

• 10, 11

2007

- Jan. 5 Declared and issued a 3-for-1 stock split
Dec. 31 Net income for 2007 is \$400,000

Required

1. Determine the 2006 EPS.
2. Determine the 2007 EPS.
3. At what amount will the 2006 EPS be presented in the 2007 comparative financial statements?

E 19-5

EPS, stock dividend,
nonconvertible
preferred stock,
treasury shares,
shares sold

• 10 min

E 19-6

EPS, stock dividend,
nonconvertible
preferred stock,
treasury shares, shares
sold, stock options

• 10 min

E 19-7

EPS, stock dividend,
nonconvertible
preferred stock,
treasury shares, shares
sold, stock options,
exercised

• 10 min

E 19-8

EPS, stock dividend,
nonconvertible
preferred stock,
treasury shares, shares
sold, convertible bonds

• 10 min

E 19-9

EPS, convertible
preferred stock,
convertible bonds

• 10 min

On December 31, 2005, Berclair Inc. had 200 million shares of common stock and 7 million shares of 6% \$100 par value cumulative preferred stock issued and outstanding. On March 1, 2006, Berclair purchased 24 million shares of its common stock as treasury stock. Berclair issued a 5% common stock dividend on July 1, 2006. Four million treasury shares were sold on October 1. Net income for the year ended December 31, 2006, was \$154 million.

Required

Compute Berclair's earnings per share for the year ended December 31, 2006.

Note: This is a variation of the previous exercise, modified to include stock options. On December 31, 2005, Berclair Inc. had 200 million shares of common stock and 7 million shares of 6% \$100 par value cumulative preferred stock issued and outstanding. Berclair issued a 5% common stock dividend on July 1, 2006. On March 1, 2006, Berclair purchased 24 million shares of its common stock as treasury stock. Four million treasury shares were sold on October 1. Net income for the year ended December 31, 2006, was \$154 million.

Also outstanding at December 31, 2005, were stock options granted to key executives on September 13, 2005. The options are exercisable for 30 million common shares at an exercise price of \$56 per share. During 2006, the market price of the common stock averaged \$70 per share, peaking at \$80 on December 31.

Required

Compute Berclair's basic and diluted earnings per share for the year ended December 31, 2006.

Note: This is a variation of the previous exercise, modified to include the exercise of stock options. On December 31, 2005, Berclair Inc. had 200 million shares of common stock and 7 million shares of 6% \$100 par value cumulative preferred stock issued and outstanding. Berclair issued a 5% common stock dividend on July 1, 2006. On March 1, 2006, Berclair purchased 24 million shares of its common stock as treasury stock. Four million treasury shares were sold on October 1. Net income for the year ended December 31, 2006, was \$150 million.

Also outstanding at December 31, 2005, were stock options granted to key executives on September 13, 2005. The options are exercisable for 30 million common shares at an exercise price of \$56 per share. During 2006, the market price of the common stock averaged \$70 per share, peaking at \$80 on December 31. The options were exercised on September 1, 2006.

Required

Compute Berclair's basic and diluted earnings per share for the year ended December 31, 2006.

Note: This is a variation of the previous exercise, modified to include convertible bonds. On December 31, 2005, Berclair Inc. had 200 million shares of common stock and 7 million shares of 6% \$100 par value cumulative preferred stock issued and outstanding. Berclair issued a 5% common stock dividend on July 1, 2006. On March 1, 2006, Berclair purchased 24 million shares of its common stock as treasury stock. Four million treasury shares were sold on October 1. Net income for the year ended December 31, 2006, was \$150 million. The income tax rate is 40%.

Also outstanding at December 31, 2005, were stock options granted to key executives on September 13, 2005. The options are exercisable for 30 million common shares at an exercise price of \$56 per share. During 2006, the market price of the common stock averaged \$70 per share, peaking at \$80 on December 31.

\$62.5 million of 8% bonds, convertible into 5 million common shares, were issued at face value on 1/1/06.

Required

Compute Berclair's basic and diluted earnings per share for the year ended December 31, 2006.

Information from the financial statements of the Ames Fabricators, Inc., included the following:

| | December 31 | |
|--|-------------|-------------|
| | 2006 | 2005 |
| Common shares | 100,000 | 100,000 |
| Convertible preferred shares
(convertible into 32,000 shares of common) | 12,000 | 12,000 |
| 10% convertible bonds
(convertible into 30,000 shares of common) | \$1,000,000 | \$1,000,000 |

Arden's net income for the year ended December 31, 2006, is \$500,000. The income tax rate is 40%. Arden paid dividends of \$3 per share on its preferred stock during 2006.

Required:

Compute basic and diluted earnings per share for the year ended December 31, 2006.

Stanley Department Stores reported net income of \$723,950 for the year ended December 31, 2006.

Additional information:

Common shares outstanding at Jan. 1, 2006 80,000

Stock warrants outstanding throughout 2006 24,000

Each warrant is exercisable for one common share at an exercise price of \$37.50.

During the year, the market price of Stanley's common stock averaged \$45, ending 2006 at \$50 per share.

On Aug. 30 Stanley sold 15,000 common shares.

Stanley's only debt consisted of \$50,000 of 7% short-term bank notes.

The company's income tax rate is 40%.

Required:

Compute Stanley's basic and diluted earnings per share for the year ended December 31, 2006.

During its first year of operations, McCallum Tool Works entered into the following transactions relating to shareholders' equity. The corporation was authorized to issue 100 million common shares, \$1 per share.

Jan. 2 Issue 35 million common shares for cash.

3 Entered an agreement with the company president to issue up to 2 million additional shares of common stock in 2007 based on the earnings of McCallum in 2007. If net income exceeds \$140 million, the president will receive 1 million shares; 2 million shares if net income is \$140 million to \$150 million; 3 million shares if net income exceeds \$150 million.

Mar. 31 Issue 4 million shares in exchange for plant facilities.

Net income for 2006 was \$146 million.

Required:

Compute basic and diluted earnings per share for the year ended December 31, 2006.

Anderson Steel Company began 2006 with 600,000 shares of common stock outstanding. On March 31, 2006, 60,000 new shares were sold at a price of \$45 per share. The market price then risen steadily over the time to a high of \$50 per share at December 31. No other changes in shares occurred during 2006; thus no securities are outstanding that can become common stock. However, there are two agreements with officers of the company for future issuance of common stock. Both agreements relate to compensation arrangements reached in 2005. The first agreement grants to the company president a right to 10,000 shares of stock each year (the closing market price is at least \$40). The agreement begins in 2007 and expires in 2010. The second agreement grants to the chief financial officer a right to 5,000 shares of stock if the chief is still with the firm at the end of 2006. Net income for 2006 was \$1,100,000.

Required:

Compute Anderson Steel Company's basic and diluted EPS for the year ended December 31, 2006.

Listed below are several terms and phrases associated with earnings per share. Pair each item from List A with the item from List B that is most appropriately associated with it.

List A

List B

1. Subtract preferred dividends.

a. Options exercised

2. Time-weighted by day.

b. Simple capital structure.

3. Time-weighted shares assumed issued plus time-weighted actual shares.

c. Basic EPS

4. Midyear event treated as if it occurred at the beginning of the reporting period.

d. Convertible preferred stock

5. Preferred dividends do not reduce earnings.

e. Earnings available to common shareholders

6. Single EPS presentation.

f. Antidilutive

7. Stock split.

g. Increased marketability

8. Potentially dilutive security.

h. Extraordinary items.

9. Exercise price versus market price.

i. Stock dividend

10. No dilution assumed.

Add after an increase in numerator

11. Convertible bonds.

k. Diluted EPS

12. Contingently issuable shares.

l. Noncumulative, undivided preferred dividends

13. Maximum potential dilution.

m. Common shares held at the beginning of August

14. Per share amount that is not an income.

n. Include in diluted EPS when conditions for issuance are met

15. Per share amount that is not an income.

19-20

EPS, share issued, stock options

19-27 through 19-28

19-29

EPS, contingently issuable shares

19-31

19-42

19-42 new shares, contingent agreements

19-43

19-43

EPS, concepts, terminology

19-46 through 19-47

E 19-24

Multiple choice, CMA
exam: state-based
competencies

LO1

The following questions dealing with state-based compensation are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designations sponsored by the Institute of Management Accountants (IMA) membership provides holders with an objective test of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or question.

1. Noncontingent stock option plans have all of the following characteristics, except:
 - a. participation by substantially all full-time employees who meet minimal employment qualifications.
 - b. equal offers of stock to all eligible employees.
 - c. a limited amount of time permitted to exercise the option.
 - d. a provision related to the achievement of certain performance criteria.
2. A stock options plan may or may not be intended to compensate employees for their work. The compensation expense for compensatory stock option plans should be recognized in the periods the:
 - a. employees become eligible to exercise the options.
 - b. employees perform services.
 - c. stock is issued.
 - d. options are granted.

PROBLEMS

An alternate exercise and problem set is available on the text website www.mhhe.com/stg10ed2

P 7-2

Stock options,
forfeiture, exercise

LO2

On October 1, 2006, the board of directors at Esar Minerals Corporation approved a stock option plan for key executives. On January 1, 2006, 20 million stock options were granted, exercisable for 20 million shares of Esar's \$1 per common stock. The options are exercisable between January 1, 2009 and December 31, 2011, at 105% of the quoted market price on January 1, 2006, which was \$15. The fair value of the 20 million options, estimated by an appropriate option pricing model, is \$6 per option.

Two million options were forfeited when an executive resigned in 2007. All other options went unexercised on July 31, 2011, when the stock's price jumped unexpectedly to \$49 per share.

Required:

1. When is Esar's stock option measurement date?
2. Determine the compensation expense for the stock option plan in 2006. Ignore taxes.
3. What is the effect of forfeiture of the stock options on Esar's financial statements for 2007 and 2008?
4. Is this effect consistent with the general approach for accounting for changes in estimates? Explain.
5. How should Esar account for the exercise of the options in 2010?

P 7-3

Working for your
benefit: an effort
recognized

LO2

Excel

Walton Audio Visual, Inc. offers a stock option plan to its regional managers. On January 1, 2006, options were granted for 40 million \$1 par common shares. The exercise price is the market price on the grant date, \$8 per share. Options cannot be exercised prior to January 1, 2008, and expire December 31, 2012. The fair value of the options, estimated by an appropriate option pricing model, is \$2 per option. Because the plan does not qualify as an incentive plan, Walton will receive a tax deduction upon exercise of the options equal to the excess of the market price at exercise over the exercise price. The income tax rate is 40%.

Required:

1. Determine the total compensation cost pertaining to the stock option plan.
2. Prepare the appropriate journal entries to record compensation expense and its tax effect on December 31, 2006.
3. Prepare the appropriate journal entries to record compensation expense and its tax effect on December 31, 2007.
4. Record the exercise of the options and the tax effect if all the options are exercised on March 1, 2008, when the market price is \$17 per share.
5. Assume the option plan qualifies as an incentive plan. Prepare the appropriate journal entries to record compensation expense and its tax effect on December 31, 2006.
6. Assume the option plan qualifies as an incentive plan. Record the exercise of the options and the tax effect if all the options are exercised on March 1, 2008, when the market price is \$17 per share.

P 19-3

Stock option plan,
deferred tax effect of a
nonqualifying plan

LO2

JB1 Apparel manufactures and distributes casual pants and supplies. Employees are offered a variety of state-based compensation plans. Under its nonqualified stock option plan, JB1 granted options to key executives on January 1, 2006. The options permit holders to acquire six million of the company's \$5 per share shares for \$22 within the next six years, but no earlier than January 1, 2009 (the vesting date). The market price of the shares on the date of grant is \$20 per share. The fair value of the 6 million options, estimated by an appropriate option pricing model, is \$6 per option. Because the plan does not qualify as an incentive plan,

15) will involve a tax deduction upon exercise of the options equal to the excess of the market price at exercise over the exercise price. The tax is 40%.

Required

1. Determine the total compensation cost pertaining to the executive stock options plan.
2. Prepare the appropriate journal entries to record compensation expense and its tax effect (in December 31, 2006, 2007, and 2008).
3. Record the exercise of the options and their tax effect if all of the options are exercised on August 21, 2014, when the exercise price is \$21 per share.

LCI Cable Company grants 1 million performance stock options to key executives at January 1, 2006. The options enable executives to receive 1 million of LCI's \$1 par common shares, subject to the achievement of specific financial goals over the next four years. Attainment of these goals is considered probable initially and throughout the service period. The options have a current fair value of \$12 per option.

Required

1. Prepare the appropriate entry when the options are awarded on January 1, 2006.
2. Prepare the appropriate entries on December 31 of each year 2006–2009.
3. Suppose in the beginning of 2009, LCI decided it is not probable that the performance objectives will be met. Prepare the appropriate entries on December 31 of 2008 and 2009.

On December 31, 2006, Ainsworth, Inc., had 600 million shares of common stock outstanding. Twenty million shares of this \$100 par value cumulative nonconvertible preferred stock were sold on January 2, 2006. On April 30, 2006, Ainsworth purchased 30 million shares of its common stock as treasury stock. Twelve million treasury shares were sold on August 31. Ainsworth issued a 5% common stock dividend on June 1, 2006. No cash dividends were declared in 2006. For the year ended December 31, 2006, Ainsworth reported a net loss of \$140 million, including an after-tax extraordinary loss of \$400 million from a litigation settlement.

Required

1. Determine Ainsworth's net loss per share for the year ended December 31, 2006.
2. Determine the per share amount of earnings or loss from continuing operations for the year ended December 31, 2006.
3. Prepare an EPS presentation that would be appropriate to appear on Ainsworth's 2006 and 2005 comparative income statements. Assume EPS was reported in 2005 as \$75, based on net income (no extraordinary items) of \$450 million and a weighted average number of common shares of 600 million.

(Note: Problem 19-6 is based on the same situation described in Problems 18-4 in Chapter 18, modified to focus on EPS rather than recording the items that affected retained earnings.)

Comparative Statements of Retained Earnings for Kona-Dewer Corporation were reported as follows for the three years ending December 31, 2004, 2005, and 2006.

KONA-DEWER CORPORATION
Statements of Retained Earnings

| For the Years Ended December 31 | 2006 | 2005 | 2004 |
|---|-------------|-------------|-------------|
| Balance at beginning of year | \$6,794,292 | \$5,464,052 | \$5,624,552 |
| Net income (loss) | 2,308,700 | 2,240,000 | 160,500 |
| Deductions: | | | |
| Stock dividend (34,000 shares) | 240,000 | | |
| Common shares retired, September 30 (10,000 shares) | | 212,660 | |
| Common stock cash dividends | 889,950 | 896,000 | 0 |
| Balance at end of year | \$6,973,042 | \$6,794,292 | \$5,464,052 |

At December 31, 2005, paid-in capital consisted of the following:

| | |
|---|-------------|
| Common stock, 1,050,000 shares at \$1 par | \$1,050,000 |
| Paid-in capital—excess of par | 7,420,000 |

No preferred stock or potential common shares were outstanding during any of the periods shown.

Required

Compute Kona-Dewer's earnings per share as it would have appeared on income statements for the years ended December 31, 2004, 2005, and 2006.

Comparative Statements of Shareholders' Equity for Locke Intermediary Corporation were reported as follows for the fiscal years ending December 31, 2004, 2005, and 2006.

P 19-8
Performance option plan

• LCI

P 19-5
EPS; net loss; stock dividend; nonconvertible preferred stock; treasury shares; shared stock; extraordinary loss

• 1 through 3

P 19-6
EPS; net statement of retained earnings

• C5 through C8

excel

P 19-7
EPS from statement of shareholders' equity



LOCKE INTERTECHNOLOGY CORPORATION
Statements of Shareholders' Equity
For the Years Ended December 31, 2004, 2005, and 2006
(in millions)

| | Preferred
Stock,
\$10 per | Common
Stock,
\$1 per | Additional
Paid-in Capital | Retained
Earnings | Total
Shareholders'
Equity |
|--|---------------------------------|-----------------------------|-------------------------------|----------------------|----------------------------------|
| Balance at January 1, 2004 | | 55 | 495 | 1,978 | 2,428 |
| Sale of preferred shares | 0 | | 610 | | 495 |
| Sale of common shares, 7.5 | | 7 | 8 | | 90 |
| Cash dividend, preferred | | | | 1 | 1 |
| Cash dividend, common | | | | 61 | 161 |
| Net income | | | | 290 | 290 |
| Balance at December 31, 2004 | 10 | 62 | 1,046 | 2,131 | 3,249 |
| Retirement of common shares, 4/1 | | (4) | (16) | (20) | (40) |
| Cash dividend, preferred | | | | (1) | (1) |
| Cash dividend, common | | | | (20) | (20) |
| 3-for-2 split effected in the form of
a common stock dividend, 8/12 | | 30 | (30) | | |
| Net income | | | | 380 | 380 |
| Balance at December 31, 2005 | 10 | 90 | 980 | 2,490 | 3,570 |
| 10% common stock dividend, 5/1 | | 9 | 90 | (99) | |
| Sale of common shares, 9/1 | | 3 | 31 | | 34 |
| Cash dividend, preferred | | | | (2) | (2) |
| Cash dividend, common | | | | (22) | (22) |
| Net income | | | | 412 | 412 |
| Balance at December 31, 2006 | 10 | 102 | 1,101 | 2,779 | 3,992 |

Required

Refer to the statements for events and transactions that affected Locke Intertechnology Corporation shareholders' equity and compute earnings per share as it would have appeared on the financial statements for the years ended December 31, 2004, 2005, and 2006. No potential common shares were outstanding during any of the periods shown.

- P 17 B**
 EPS, nonconvertible
 preferred stock
 treasury shares, shares
 split, stock dividend

- P 19 D**
 EPS, nonconvertible
 preferred stock
 treasury shares, shares
 split, stock dividend,
 options



On December 31, 2005, Dow Steel Corporation had 600,000 shares of common stock and 300,000 shares of 8%, noncumulative, nonconvertible preferred stock issued and outstanding. Dow issued a 4% common stock dividend on May 15 and paid cash dividends of \$400,000 and \$75,000 to common and preferred shareholders, respectively, on December 15, 2006.

On February 28, 2006, Dow sold 60,000 common shares in keeping with its long-term share repurchase plan. 2,000 shares were retired on July 1. Dow's net income for the year ended December 31, 2006, was \$710,000. The corporate tax rate is 40%.

Required

Compute Dow's earnings per share for the year ended December 31, 2006.

Note: This is a variation of the previous problem, modified to include stock options.

On December 31, 2005, Dow Steel Corporation had 600,000 shares of common stock and 300,000 shares of 8%, noncumulative, nonconvertible preferred stock issued and outstanding. Dow issued a 4% common stock dividend on May 15 and paid cash dividends of \$400,000 and \$75,000 to common and preferred shareholders, respectively, on December 15, 2006.

On February 28, 2006, Dow sold 60,000 common shares in keeping with its long-term share repurchase plan. 2,000 shares were retired on July 1. Dow's net income for the year ended December 31, 2006, was \$710,000. The corporate tax rate is 40%.

As part of an executive compensation plan, Dow granted stock options to division managers at the end of the current year, the end of the previous year. Each option permits its holder to buy one share of common stock at an exercise price equal to market value at the date of grant. Information concerning the number of options granted and corresponding share prices follows.

| Date Granted | Options Granted | Share Price |
|-------------------|-----------------------------------|-------------|
| | (adjusted for the stock dividend) | |
| December 31, 2004 | 1,000 | \$33 |
| December 31, 2005 | 1,000 | \$24 |
| December 31, 2006 | 6,500 | \$31 |

The market price of the common stock averaged \$32 per share during 2006.

P 8-0
 Convertible
 preferred stock,
 treasury shares,
 stock dividend,
 options, convertible
 bonds, contingently
 issuable shares

• 235 through 237

7.
 EPS antidilution

• 235 through 237

P 5-2
 EPS, convertible
 bonds, treasury shares

• 235 through 237

P 6-3
 EPS, options,
 convertible preferred,
 additional shares

Required

Compute Dow's earnings per share for the year ended December 31, 2006.

(Note: This is a variation of the previous problem. Modify to include convertible bonds and contingently issuable shares.)

On December 31, 2004, Dow Steel Corporation has 600,000 shares of common stock and 300,000 shares of 10% noncumulative, nonconvertible preferred stock issued and outstanding. Dow issued a 4% convertible stock dividend on May 1 and paid cash dividends of \$400,000 and \$75,000 to common and preferred shareholders, respectively, on December 15, 2005.

On February 28, 2006, Dow sold all 100,000 common shares. Also, as a part of a 2005 agreement for the acquisition of Merrill Cable Company, 100,000 shares (initially adjusted for the stock dividend) are to be issued to former Merrill shareholders on December 31, 2007 if Merrill's 2007 net income is at least \$500,000. In 2006, Merrill's net income was \$430,000.

In keeping with its long-term share repurchase plan, 2,000 shares were retired on July 1. Dow's net income for the year ended December 31, 2006, was \$2,300,000. The income tax rate is 40%.

As part of its incentive compensation plan, Dow granted stock options to division managers at December 31 of the current and each of the previous two years. Each option permits the holder to buy one share of common stock at an exercise price equal to market value at the time of grant. Information concerning the number of options granted and expiration share prices follows:

| Date Granted | Options Granted
(adjusted for the stock dividend) | Share Price |
|-------------------|--|-------------|
| December 31, 2004 | 3,000 | \$32 |
| December 31, 2005 | 8,000 | \$34 |
| December 31, 2006 | 6,500 | \$31 |

The market price of the common stock averaged \$32 per share during 2006.

On July 12, 2004, Dow issued \$300,000 of convertible 0% debentures at face value. Each \$100 bond is convertible into 10 common shares at any time for the stock dividend.

Required

Compute Dow's basic and diluted earnings per share for the year ended December 31, 2006.

Suppose Company earned a net income of \$390,000 in 2006. The weighted-average number of common shares outstanding for 2006 was 40,000. The average stock price for 2006 was \$33. Assume no income tax rate change.

Required

For each of the following independent situations, indicate whether the security is antidilutive or diluted EPS.

- 10,000 shares of 7.5% of \$100 par convertible, cumulative preferred stock. Each share may be converted into two common shares.
- 10% convertible 10-year, \$300,000 of bonds, issued at face value. The bonds are convertible to 3,000 shares of common stock.
- Stock options exercisable at \$20 per share after January 1, 2006.
- Warrants for 1,000 common shares with an exercise price of \$35 per share.
- A contingent agreement to issue 5,000 shares of stock to the company president if net income is at least \$125,000 in 2007.

At December 31, 2006, the financial statements of Hollingsworth Industries included the following:

| | |
|--|---------------|
| Net income for 2006 | \$200 million |
| Bonds payable, 10%, convertible into 30 million shares of common stock | \$300 million |
| Common stock: | |
| Shares outstanding on January 1 | 400 million |
| Treasury shares purchased from 1/1 to September 1 | 20 million |

Additional data

The bonds payable were issued in par in 2004. The tax rate for 2006 was 40%.

Required

Compute basic and diluted EPS for the year ended December 31, 2006.

On January 1, 2006, Tringe Industries has outstanding 440,000 common shares (par \$1) and originally sold for \$21 per share and 4,000 shares of 10% cumulative preferred stock (par \$10) convertible into 40,000 common shares.

On October 1, 2006, Tringe sold and retired an additional 10,000 shares of common stock at \$33. At December 31, 2006, there were 100,000 shares of stock outstanding, issued in 2005, and exercisable for 20,000

ಸಿ.ವಿ.ಕೆ.ಎಸ್.ಎಲ್.

Prepare such a report after including the following:

1. At what point should the compensation cost be measured? How should it be measured?
2. How should compensation expense be measured for the stock options plan in 2006 and later?
3. If options are forfeited because an executive resigns before vesting, what is the effect of that forfeiture of the stock options on the financial statements?
4. If options are forfeited because they are allowed to lapse after vesting, what is the effect of that forfeiture of the stock options on the financial statements?

You are in your second year as an auditor with Josely and Kees, a regional CPA firm. One of the firm's long-time clients is Musberry-Chenoweth Industries, a national company involved in the manufacturing, marketing, and sales of hydraulic devices used in specialized manufacturing applications. Early in this year, you recall you discussing that Musberry-Chenoweth was changed its method of determining inventory from LIFO to FIFO. Your client's explanation is that FIFO is consistent with the method used by some other companies in the industry. Upon further investigation, you discover an executive stock option plan whose terms call for a significant increase in the shares available to executives if net income this year exceeds \$25 million. Some quick calculations convince you that without the change in inventory methods, the target will not be reached, with the change it will.

Do you perceive an ethical dilemma? What would be the likely impact of following the corporation's suggestion? What would be yours? What would her interest?

Stock options

• $\frac{1}{2}$

General Electric
 GE-based plants,
 General Electric
 GE-based plants

• we thought of

Note 12 in part:

Two large measures that have been adopted in the last three years are the Black Sunday open market and the new law on the use of land. The new law is a significant step towards the reform of the land market and the new law on the use of land is a significant step towards the reform of the land market.

GRE is share-based compensation includes stock options, stock appreciation rights, restricted stock awards, and performance-based awards. What is the general financial reporting objective with respect to share-based compensation?

2. (32) reported spare-parts expense of 324 million in 2004, a third quarter. Without resorting to specific numbers, describe how this amount reflects the value of spare options to portfolio firms in the current period.

Where are the profits?

甲、乙、丙、丁、戊、己、庚、辛、壬、癸、子、丑、寅、卯、辰、巳、午、未、申、酉、戌、亥、

The Lone Construction Company has experienced generally steady growth since its inception in 1970. Management is proud of its record of having maintained or increased its earnings per share in each year of its existence.

Industry pressures in the construction industry have led to increasing slight reverses the past two years. Despite concerted cost-cutting efforts, profits have actually declined in each of the two previous years. According to the ENR, the industry was to be a "loss leader" in 1994.

| | |
|------|----------------|
| 2004 | \$1.46 million |
| 2005 | \$1.34 million |
| 2006 | \$1.95 million |

A major shareholder has hired you to provide advice on whether to undertake investment projects or to resist that position. Of course, the question is the declining profitability, despite the fact that earnings per share has increased a pattern of growth.

| | Basic | Diluted |
|------|--------|---------|
| 2004 | \$2.15 | \$1.91 |
| 2005 | \$2.44 | \$2.2 |
| 2006 | \$2.60 | \$2.50 |

The respondent asks you to explain this apparent paradox. During the course of your investigation, you discover the following events:

- For the decade ending December 31, 2003, the Company has 60 million common shares and 20 million shares of 8% \$10 par nonconvertible preferred stock outstanding. Cash dividends have been paid quarterly in bulk.
- On July 1, 2003, all the preferred shares were retired in the open market. The remaining shares were retired in December of 2003.
- \$3.5 million of 8% nonconvertible bonds were issued at the beginning of 2005 and a portion of the proceeds were used to call and retire \$5.4 million of 10% debentures (outstanding since 2001) that were convertible into 9 million common shares.
- In 2004 management announced a share repurchase plan by which up to 24 million common shares would be retired. 12 million shares were repurchased on March 1 of both 2005 and 2006.
- Del Corral's income tax rate is 40% and has been flat for the last several years.

References:

Explain the apparent paradox in which your η_{eff} refers, include calculations that demonstrate your conclusion.

"I thought a underwritten insurance policy, and I found our convertible bonds are a convertible insurance policy," says Berman. "I thought I was being a little bit clever, but I was not." Berman says that the insurance company was not a subsidiary of the company, but a separate entity. The insurance company was not a subsidiary of the company, but a separate entity. The insurance company was not a subsidiary of the company, but a separate entity.

4. 2011. 10. 10.

Write a memo to Lawson, explain the effect on earnings per share of each of the following in a probable sequence.

7. www.irs.gov/efile

The three companies principally engaged in the production and marketing of consumer products in India through wholly owned subsidiaries are: (i) Hindustan Lever Ltd. (HLL), (ii) Hindustan Petroleum Corp. Ltd. (HPCL) and (iii) Hindustan Zinc Ltd. (HZL).

| | Years Ended June 30 | | |
|---|---------------------|-------|-------|
| | 2004 | 2003 | 2002 |
| Earnings from continuing operations | \$240 | \$174 | \$151 |
| Earnings (losses) from discontinued operations, net of tax benefits of \$7, \$6 and \$28 for years ended June 30, 2004, 2003 and 2002, respectively | 0 | 127 | 125 |
| Net earnings | \$240 | \$301 | \$276 |

The two statements can be made equivalent if we add the requirement: presentational. If it is not possible to state the statement. The two possible 'logically' equivalent statements are now: colour and operator and colour and operator.

turns require more of these things. A question: what is the most important thing? how do we

21 Earnings per Share

A recent rise of the web-glitch-and-pyramid-to-a-concrete-shares-outstanding-in-thousands-well
in-a-robust-and-durable-earnings-well-in-a-robust-and-durable-earnings-well-in-a-robust-and-durable-earnings-well
June 10

| | 2004 | 2003 | 2002 |
|-------------------------|-------|----------|----------|
| Basic | 1,603 | 1,167.74 | 2,311.34 |
| Stock options and other | 1,688 | 1,518 | 1,655 |
| Diluted | 1,677 | 1,269.97 | 2,311.64 |

Stock options: participants P70-B19 & B20-B21 and A1-B27 status of common stock in the 10-K report issued June 30, 2004, 2005 and 2007. Information regarding the common share buybacks as of 2007 would be indicative

Keywords: *depression, anxiety, self-esteem, self-efficacy, coping strategies, social support*

The disclosure note states adjustments for "stock options and other." What might constitute the "other"? Explain why and how these adjustments are made to the weighted-average shares. (10-10)

2. The disclosure page advances some of the stock options were not included because they would be antidilutive. What does that mean? Why not include antidilutive securities?
3. Based on the information provided, prepare the presentation of basic and diluted earnings per share for 2004, 2003, and 2002 that Clorox reports in its 2004 annual report.

Analysis Case 19-8
Analyzing financial
statements:
price-earnings ratio,
dividend payout ratio

LO 2, 3

IGF Foods Company is a large, primarily domestic, consumer foods company involved in the manufacture, distribution and sale of a variety of food products. Industry averages are derived from *Tru's The Almanac of Business and Industrial Earnings and Profits* and *Standard & Poor's Industry Handbook Key Business Ratios*. Following are the 2006 and 2005 comparative income statements and balance sheets for IGF. The market price of IGF's common stock is \$4.50 during 2006. The financial data we use are from official financial statements of a well-known corporation (but the company name used in our illustration is fictitious and the numbers and dates have been modified slightly to illustrate the principal's tendency).

IGF FOODS COMPANY
Years Ended December 31, 2006 and 2005

| \$ in millions | 2006 | 2005 |
|--------------------------------------|----------------|----------------|
| Comparative Income Statements | | |
| Net sales | \$6,440 | \$5,800 |
| Cost of goods sold | (2,567) | (2,389) |
| Gross profit | 3,873 | 3,411 |
| Selling expenses | (1,914) | (1,829) |
| Operating income | 1,959 | 1,582 |
| Interest expense | (54) | (52) |
| Income from operations before tax | 1,905 | 1,530 |
| Income taxes | (516) | (287) |
| Net income | <u>\$1,389</u> | <u>\$1,243</u> |
| Net income per share | \$1.64 | \$1.24 |
| Average shares outstanding | 184 million | 197 million |

Comparative Balance Sheets

| | Assets | |
|---|----------------|----------------|
| Total current assets | \$1,679 | \$1,490 |
| Property, plant, and equipment (net) | 2,492 | 2,291 |
| Intangible assets | 800 | 847 |
| Other assets | 14 | 62 |
| Total assets | <u>\$5,045</u> | <u>\$4,690</u> |
| Liabilities and Shareholders' Equity | | |
| Total current liabilities | \$1,411 | \$1,491 |
| Long-term debt | 1,334 | 1,288 |
| Deferred income taxes | 507 | 340 |
| Total liabilities | 2,442 | 2,019 |
| Shareholders' equity | | |
| Common stock | 100 | 80 |
| Additional paid-in capital | 21 | 67 |
| Retained earnings | 2,422 | 2,424 |
| Total shareholders' equity | 2,543 | 2,571 |
| Total liabilities and shareholders' equity | <u>\$5,045</u> | <u>\$4,690</u> |

Some ratios express income divided into market price, or a per share basis. As such, these ratios up and down with the common shareholder's market value when weighing investment opportunities. Such ratios are not as useful in the absolute value sense as a company and more in its investment characteristics.

Required:

1. Earnings per share expresses a firm's profitability on a per share basis. Calculate 2006 earnings per share for IGF.
2. Calculate IGF's 2006 price-earnings ratio. The average price-earnings ratio for the stocks listed on the New York Stock Exchange in a comparable time period was 16.5. What does your calculation indicate about IGF's earnings?
3. Calculate IGF's 2006 dividend payout ratio. What information does the calculation provide an investor?

Ethics Case 18-9 International Network Solutions

• 10T

International Network Solutions provides information and services related to remote access networking. It developed into a very rapidly growing company in its first years of operation. As its segment in the industry began to mature, though, the fast growth of previous years has begun to slow. In fact, as you remember, and as is the case with the same unit at Vista,

the marketing department was in the doghouse. Rob Mashburn, CEO and head of sales, and another senior manager were sharing coffee and ideas in Larry's office.

Lance: Around the board meeting, huh? You may be right. This may be the time to suggest a buyback of shares.

Mashburn: In fact, that's not a bad idea.

Lance: It might make sense to use the funds for our European expansion. That's probably right. Should we also use the use of our funds but we can always raise more money if we need it. Right? It's not a quick fix for our EPS numbers.

Mashburn: Our shareholders are accustomed to increases every year.

Required:

1. How will a buyback of shares provide a "quick fix" for EPS?
2. Is the proposal ethical?
3. What would be affected if the proposal is implemented?

Microsoft Corporation offers compensation to its employees and executives through a variety of compensation plans. One such plan is its stock option plan, which is described in the following disclosure due in its fiscal 2014 annual report.

Ethics Options (in part)

During 2013, we granted stock options to our executive officers and employees under a non-qualified stock plan. Options granted during 2013 were for 1,000,000 shares, all of which are expected to vest by the end of 2014. At the end of 2013, our stock options for 1,000,000 shares were valued at \$1.00.

At the end of 2013, approximately 149 million outstanding options were exercisable. The financial statements also reported the dilution effect of the stock used in calculating diluted earnings per share and the shares used in the basic EPS calculations were 14,816 million.

Required:

1. How might the employee stock options described in the disclosure here affect earnings per share?
2. If we assume a conservative estimate of the value of stock options and the number of common shares outstanding, how might the value of earnings per share be affected? What would be the effect on the number of options and the number of shares used in the calculation?

Many sites on the Internet allow the retrieval of prices, stock price information. Among the sites are the following: www.kellogg.com and www.mckinsey.com.

Required:

1. Access the Kellogg's website and find the current stock price. Determine the price of the Kellogg's stock on the date of the report. (Note: The Kellogg's stock price is listed in the Kellogg's website.)
2. Access EIC on the Internet using the Kellogg's website. Search for the Kellogg's company information. Find the Kellogg's company information and determine the Kellogg's company information. Repeat this step for the Kellogg's company information.
3. Calculate the price-earnings ratio for Kellogg's company.
4. Compare the PE ratios of Kellogg's company with the industry average. What information might be gained from this comparison?

While reading his Kellogg's Progress Report, one reader noticed the following information in the report:

Kellogg Reports Strong Results in 2014

On Feb. 10, 2015, Kellogg's 2014 Progress Report was released. Kellogg's company (NYSE: K) today reported its fourth quarter and full-year earnings. Kellogg's company reported fourth quarter earnings of \$0.45 per share, up from \$0.43 per share in the third quarter. Full-year earnings were \$1.70 per share, up from \$1.65 per share in 2013. Reported net earnings for the full year were \$1.70 billion, up from \$1.65 billion in 2013. Reported net earnings for the fourth quarter were \$0.45 billion, up from \$0.43 billion in the third quarter of 2014. Kellogg's company reported fourth quarter earnings of \$0.45 per share, up from \$0.43 per share in the third quarter of 2014. Kellogg's company reported fourth quarter earnings of \$0.45 per share, up from \$0.43 per share in the third quarter of 2014.

FINANCIAL

Real World Case 18-10 Executive stock options and EPS

• 10P

Research Case 19 Determining and comparing price earnings ratios and earnings per share numbers from the Internet

• 012

Analyst's Report Kellogg's EPS, PE ratio, dividend payout

• 012

As a shareholder, Tony is well aware that Kellogg pays a regular cash dividend of \$0.225 per share quarterly. A quick click on a price quote service indicated that Kellogg's shares closed at \$44.60 on December 5. That web page also reported Kellogg's previous year's EPS as \$3.19.

Required:

- Using the numbers provided, determine the price/earnings ratio for Kellogg Company for 2004. What is the ratio's share that ratio implied?
- What is the dividend payout ratio for Kellogg? What does it indicate?

The shareholders' equity of Proactive Systems, Inc. included the following at December 31, 2006:

| |
|--|
| Common stock—\$10 |
| Paid-in capital—premium of per on common stock |
| 7% cumulative convertible preferred stock, \$100 par value |
| Paid-in capital—premium of per on preferred stock |
| Retained earnings |

Additional information:

- Proactive had 7 million shares of preferred stock authorized, of which 2 million were outstanding. All 2 million shares outstanding were issued in 2000 for \$112 a share. The preferred stock is convertible into common stock on a two-for-one basis (as of December 31, 2008, after which the preferred stock no longer is convertible). None of the preferred stock has been converted into common stock at December 31, 2006. There were no dividends in arrears.
- Of the 3 million common shares authorized, there were 6 million shares outstanding at January 1, 2006. Proactive also had 3 million shares at the beginning of September 2006 at a price of \$47 a share.
- The company has an employee stock option plan where certain key employees and officers may purchase shares of common stock at the market price at the date of the option grant. All options are exercisable beginning one year after the date of the grant and expire (if not exercised) within five years of the grant date. On January 1, 2006, options for 2 million shares were outstanding at prices ranging from \$43 to \$55 a share. Options for 1 million shares were exercised at \$44 a share at the end of June 2006. No options expired during 2006. Additional options for 1.5 million shares were granted at \$55 a share during the year. The 2.5 million options outstanding at December 31, 2006, were exercisable at \$43 to \$55 a share.

The only changes to the shareholders' equity for 2006 were those described above. 2006 net income and cash dividends paid:

Required:

Explain how each of the following amounts should be determined when computing earnings per share for presentation in the income statements. For each, be specific as to the treatment of each item:

- Numerator for basic EPS
- Denominator for basic EPS
- Numerator for diluted EPS
- Denominator for diluted EPS

Real World Case

12-74

For share data, stock options, antidilutive securities, Sun Microsystems

• LO4

Sun Microsystems, Inc., headquartered in Santa Clara, California, is a prominent provider of products and services for network computing. Sun's 2004 annual report included the following disclosure note:

Computation of Net Loss per Common Share (in part):

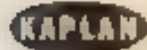
Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding during the period. Dilutive common stock is not included in the computation of basic net loss per share. The following table shows the computation of basic and diluted net loss per share amounts:

| | Fiscal Years Ended June 30 | | |
|--|----------------------------|--------|--------|
| | 2004 | 2003 | 2002 |
| Net loss | \$ 358 | \$ 747 | \$ 587 |
| Weighted average shares outstanding | 27 | 176 | 342 |
| Basic and diluted net loss per common share (antidilutive securities excluded) | \$13.26 | \$4.25 | \$1.72 |

CPA SIMULATION 19-1

[illegible]

Europe 124

[illegible]

CRA REVIEW

שְׁמוֹת הַבָּנִים הָיוּ: יוֹסֵף, בְּנֵימִן, דָּן, נַפְתָּלִי, גָּד, אֲשֵׁר, יִזְחָר, שִׁמְשׁוֹן, לֵוִי, יִשְׁשָׁכָר, זְבֻלֹן, יוֹסֵף בֶּן-זֵבֻלָּן, בִּנְיָמִן, שִׁמְשׁוֹן בֶּן-בִּנְיָמִן, וְיִשְׁשָׁכָר בֶּן-יִשְׁשָׁכָר.

It's been a long time, I'm sorry to
say, but I hope you are well.

As per the above, an order was issued for the removal of the said person from the premises of the said institution. The said person was removed from the premises of the said institution on 10.01.2019.

המחבר מודה לפרויקט "המחשבה העברית" של מכון דוידסון לחינוך מדעי, ופרויקט "המחשבה העברית" של מכון דוידסון לחינוך מדעי, ופרויקט "המחשבה העברית" של מכון דוידסון לחינוך מדעי.

in test - that knowledge of a variety of meanings for signs and

and the use of such devices including a speechboard, a calculator, and pro-

* Health care providers and commercial distributors of a product by the following public law refers



Finance & Accounting
and Reporting Section

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Итого: Сумма: Итого:

□ **Re: jms**

በፕላንቤርግ ወይም በፕላንቤርግ

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

DOI: 10.1002/anie.200429254

Dr. Andrew A. Revell

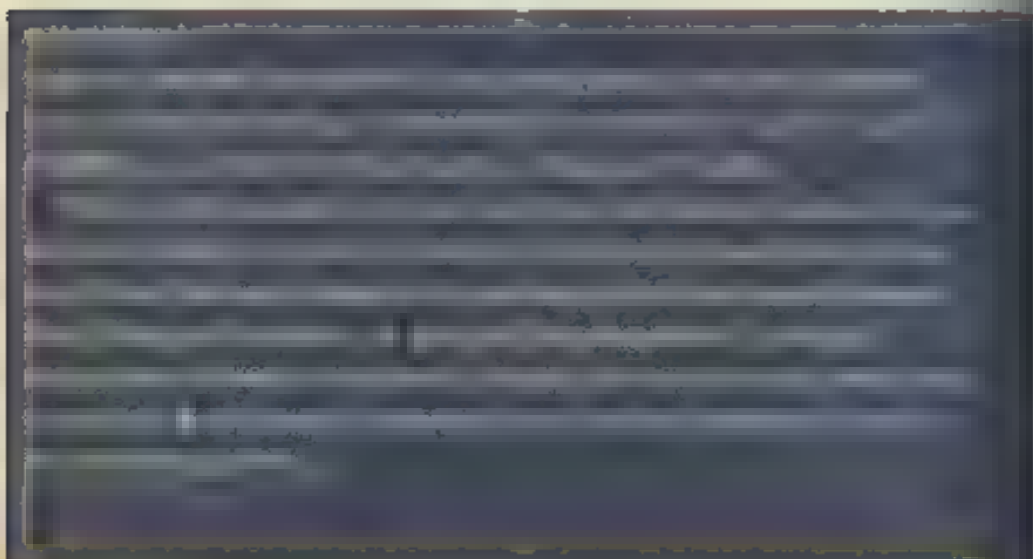
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- Calculating basic and diluted earnings per share
- Applying judgment to deciding the financial reporting implications of the issuance, exercise and expiration of stock rights and the conversion of preferred stock
- Demonstrating an understanding of corporate financial statement reporting of earnings per share
- Analyzing the financial statement effects of treasury stock transactions
- Determining the financial reporting implications of stock options
- Describing the purpose of and procedures for a going-concern audit

20

CHAPTER

Accounting Changes and Error Corrections



LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Differentiate among the three types of accounting changes and distinguish between the retrospective and prospective methods for accounting for and reporting accounting changes.
- LO2 Explain how changes in accounting principles are reported.
- LO3 Explain how and why some changes in accounting principles are reported prospectively.
- LO4 Explain how and why changes in estimates are reported prospectively.
- LO5 Describe the situations that constitute a change in accounting entity.
- LO6 Understand and apply the four-step process of correcting an accounting error regardless of the year in which the error is discovered.



In a Jam

What the heck! Martin yelled as he handed you the 2002 annual report of J.M. Smucker he'd received in the mail today. "It looks like Smucker found a bunch of lost jelly. It says here that their inventory was \$54 million in 2001," distinctly remember them reporting the number last year as \$52 million because my dad was born in '52, and did a little wordplay in my mind about him taking inventory of his life when he bought the red Mustang. He had added the number in the comparative balance sheets. "When I bought Smucker shares last year, promised myself I would monitor things pretty closely, but it's not as easy as I thought it would be."

As an accounting graduate, you can understand Martin's confusion. Flipping to the footnote on accounting changes, you proceed to clear things up for him.

By the time you finish this chapter, you should be able to respond appropriately to the worksheet posed in this case. Compare your responses to the solutions provided at the end of the chapter.

1. How can an accounting change cause a company to increase a previously reported inventory amount? (page 1013)
2. Are all accounting changes reported this way? (page 1013)

You learned early in your study of accounting that two of the qualitative characteristics of accounting information that contribute to its relevance and reliability are *consistency* and *comparability*. Though we strive to achieve and maintain these financial reporting attributes, we cannot ignore the forces of change. There is a dynamic business environment. The economy is increasingly a global one. Technological advances constantly transform our on-the-day operations and the flow of information about those operations. The accounting profession's response to the fluid environment often means issuing new standards that require companies to change accounting methods. Often developments within an industry or the economy will prompt a company to voluntarily switch methods of accounting or to revise estimates or expectations. In short, change is inevitable. The question lies in the manner of how best to address change when reporting financial information from year to year.

In the first part of this chapter, we differentiate among the various types of accounting changes that businesses face, with a focus on the most meaningful and least disruptive way to report those changes. Then, in the second part of the chapter, we direct our attention to a closely related circumstance—the correction of errors.

PART A

ACCOUNTING CHANGES

Accounting changes fall into one of three categories listed in Graphic 20-1.¹

Graphic 20-1
Types of Accounting
Changes

| Type of Change | Description | Examples |
|--------------------------------|---|--|
| Change in accounting principle | Change in the generally accepted accounting principle to another | <ul style="list-style-type: none"> Adopting a new FASB's standard Change in methods of inventory valuation Change in depreciation method, such as switching from straight-line to accelerated Change in recognition of gain or loss upon disposal of a completed project |
| Change in accounting estimate | Revision of an accounting estimate or assumption or a new accounting estimate | <ul style="list-style-type: none"> Change in depreciation method Change in estimate of useful life of depreciable asset Change in estimate of residual value or depreciation asset Change in estimate of bad debt percentage Change in estimate of pension liability Change in estimate of impairment of intangible assets Change in estimate of liabilities or contingencies |
| Change in accounting method | Change in the accounting method used by a company or by another company | <ul style="list-style-type: none"> Change in the accounting method used by a company or by another company Change in the accounting method used by a company or by another company |

A change in depreciation methods is a change in estimate that is achieved by a change in accounting principle.

The correction of an error is another adjustment sometimes made to financial statements that is not actually an accounting change but is accounted for similarly. Errors occur when transactions are either recorded incorrectly or not recorded at all, as shown in Graphic 20-2.

¹"Accounting Changes," *Accounting Principles: Student Edition*.

| Type of Change | Description | Examples |
|----------------|--|--|
| 1 | Correction of an error made in a previous period being made retroactively, if at all | <ul style="list-style-type: none"> Mathematical errors Incorrectly applying an accounting principle Change from one accounting principle to another Failure to follow an accounting principle Using an incorrect accounting principle |

GRAPHIC 20-2
Correction of Errors



Two approaches to reporting accounting changes and error corrections are used, depending on the situation.

LO1

Using the retrospective approach, financial statements issued in previous years are revised to reflect the impact of the change whenever those statements are presented again for comparative purposes. An advantage of this approach is that it achieves comparability among financial statements. All financial statements presented are prepared on the same basis. However, some argue that public confidence in the integrity of financial data suffers when numbers previously reported as correct are later superseded. On the other hand, proponents argue the opposite—that it is impossible to maintain public confidence unless the financial statements are comparable.

The retrospective approach allows companies to be comparable.

For each year in the comparative statements reported, the balance of each account affected is revised. In other words, those statements are made to appear as if the newly adopted accounting method had been applied all along or that the error had never occurred. Then, a journal entry is created to adjust the account balances affected to what those accounts would have been if the new accounting principle had been used from the beginning balance sheet date assuming that the company had reported in the comparative statements of shareholders' equity.

- The retrospective approach requires revising the prior years' financial statements; not a journal entry to adjust account balances. Instead, the change is simply implemented now, and its effects are reflected in the financial statements of the current and future years only.

The effects of a change are reflected in the current and future years only under the prospective approach.

Now, let's look at each type of accounting change, one at a time, focusing on the selective application of these approaches.

Change in Accounting Principle

Accounting is not an exact science. Professional judgment is required to apply a set of principles, concepts, and objectives in specific sets of circumstances. This means choices must be made. In your study of accounting to date, you've encountered many areas where choices are necessary. For example, management must choose whether to use accelerated or straight-line depreciation. Is FIFO, LIFO, or average cost most appropriate to measure inventories? Would the completed contract or percentage-of-completion method best reflect the performance of our construction operations? Should we adopt a new FASB standard early or wait until it's mandatory? These are but a few of the accounting choices management makes.

LO2

You also probably recall that consistency and comparability are two fundamental qualitative characteristics of accounting information. To achieve these attributes of information, accounting choices, once made, should be consistently followed from year to year. This doesn't mean, though, that methods can never be changed. Changing circumstances might make a new method more appropriate. A change in economic conditions, for instance, might prompt a company to change accounting methods. The most extensive voluntary accounting change ever—a switch by hundreds of companies from FIFO to LIFO in the mid-1970s, for example—was a result of heightened inflation. Changes within a specific industry, too, can lead a

Although consistency and comparability are two fundamental qualitative characteristics of accounting information, a new method may be more appropriate.

company to switch methods, often to adapt to new technology or to be consistent with others in the industry. And, of course, a change might be mandated. This happens when the FASB issues a new accounting standard. In 1993, all firms were required to switch from accounting for income taxes according to APB 11¹ to the method prescribed by SFAS 109. For these reasons, it's not uncommon for a company to switch from one accounting method to another. This is called a change in accounting principle.

DECISION MAKERS' PERSPECTIVE A Justification for Accounting Choices

It would be nice to think that all accounting choices are made by management in the best interest of fair and consistent financial reporting. Unfortunately, other motives influence the choices among accounting methods and whether to change methods. It has been suggested that the effect of choices on management compensation, on existing debt agreements, and on union negotiations each can affect management's selection of accounting methods. For instance, research has suggested that managers of companies with bonus plans are more likely to choose accounting methods that maximize their bonuses—often those that increase net income.² Other research has indicated that the existence and nature of debt agreements and other aspects of a firm's capital structure can influence accounting choices.³ Whether a company is forbidden from paying dividend if retained earnings fall below a certain level, for example, can affect the choice of accounting methods.

A financial analyst must be aware that different accounting methods used by different firms and by the same firm in different years complicate comparisons. Financial ratios, for example, will differ when different accounting methods are used, even when there are no differences in shareholders being compared.

Investors and creditors also should be alert to instances in which companies change accounting methods. They must consider not only the effects on comparability but also any hidden motivations for making the changes. Are managers trying to compensate for a downturn in actual performance with a switch to methods that artificially inflate reported earnings? Is the firm in danger of violating debt covenants or other contractual agreements regarding financial position? Are executive compensation plans tied to reported earnings measures? Fortunately, the nature and effect of changes are reported in the financial statements. Although a justification for a change is provided by management, analysts should be wary of accepting the reported justification at face value without considering a possible hidden agenda.

Choices are not always those that tend to increase income. As you learned in Chapter 19, many companies use the LIFO inventory method because it reduces income and, therefore, delays the amount of income taxes that must be paid currently. Also, some very large and old companies might be reluctant to report high income that might render them vulnerable to union demands, governmental regulations, or higher taxes.⁴

Another reason managers sometimes choose accounting methods that don't increase earnings was mentioned earlier. Most managers tend to prefer to report earnings that follow a regular, smooth trend from year to year. The desire to "smooth" earnings means that any attempt to manipulate earnings by choosing accounting methods is not always in the direction of higher income. Instead, the choice might be to avoid irregular earnings, particularly those with wide variations from year to year—a pattern that might be interpreted by analysts as denoting a risky situation.

¹APB 11 is the provision that eventually adopted this second standard.

²M. L. Weis and E. L. Zimmerman, "Concepts and Practices: Theory of the Determinants of Accounting Bombards," *The Accounting Review*, January 1976, and "Providing Accounting Choices: A Post-Vote Perspective," *The Accounting Review*, January 1981.

³For example, see D. M. Healy, "The Effect of Bankruptcy on Accounting Choices," *Journal of Accounting and Finance*, April 1984, pp. 11–14.

⁴See R. M. Bevers, E. W. Newell, and A. L. Lacy, "Determinants of the Corporate Decision to Capitalize Intangibles," *Journal of Accounting and Economics*, August 1981.

⁵The practical consequence is suggested by R. L. Watts and J. L. Zimmerman, "Positive Accounting Theory: A Post-Vote Perspective," *The Accounting Review*, January 1986, pp. 1–24.

Obviously, any time managers make accounting choices for any of the reasons discussed here, when the motivation is an objective other than to provide useful information, earnings quality suffers. As mentioned frequently throughout the text, earnings quality refers to the ability of reported earnings (income) to predict a company's future earnings.

Let's turn our attention now to situations involving changes in methods and how we account for those changes. ■

THE RETROSPECTIVE APPROACH: MOST CHANGES IN ACCOUNTING PRINCIPLE

We report most voluntary changes in accounting principles retrospectively. This means re-reporting all previous period's financial statements as if the new method had been used in all prior periods. An example is provided in Illustration 20-1.

LO2

Air Parts Corporation used the LIFO inventory costing method. At the beginning of 2006, Air Parts decided to change to the FIFO method. Income statements for 2006 and prior years were as follows (\$ in millions):

| | 2006 | 2005 | 2004 | Previous Years |
|---------------------------|-------|-------|-------|----------------|
| Cost of goods sold (LIFO) | \$430 | \$420 | \$405 | \$2,000 |
| Cost of goods sold (FIFO) | 470 | 465 | 360 | 1,600 |
| Difference | \$ 40 | \$ 45 | \$ 45 | \$ 300 |
| Revenues | \$950 | \$900 | \$875 | \$4,500 |
| Operating expenses | 230 | 210 | 205 | 000 |

Air Parts has paid dividends of \$40 million each year beginning in 1999. Its income tax rate is 40%. Retained earnings on January 1, 2004, was \$100 million. Inventory was \$500 million.

Illustration 20-1
Change in
Accounting Principle

LIFO usually produces higher cost of goods sold than does FIFO. As a result, net income is lower. In this example, the FIFO method produces a higher gross margin, which increases net income.

1 Revise Comparative Financial Statements. For each year reported in the comparative statements, Air Parts makes those statements appear as if the newly adopted accounting method (FIFO) had been applied all along. As you learned in Chapter 1, consistency is one of the important qualitative characteristics of accounting information. When accounting changes occur, the usefulness of the comparative financial statements is enhanced with retrospective application of those changes.

FINANCIAL REPORTING CASE

Case 20-1

Income Statements

| (\$ in millions) | 2006 | 2005 | 2004 |
|---------------------------|-------|-------|-------|
| Revenues | \$950 | \$900 | \$875 |
| Cost of goods sold (FIFO) | 470 | 465 | 360 |
| Operating expenses | (230) | (210) | (205) |
| Income before tax | \$350 | \$325 | \$310 |
| Income tax expense (40%) | 140 | 130 | 124 |
| Net income | \$210 | \$195 | \$186 |

The company revises the comparative statements to appear as if the accounting method adopted in 2006 (FIFO) had been used in 2005 and 2004 as well.

Earnings per share each year, of course, also will be based on the revised net income numbers.

| | | Common
Stock | Additional
Paid-In
Capital | Retained
Earnings | Total
Shareholders'
Equity | ILLUSTRATION 20-18
Comparative
Statements of
Shareholders' Equity |
|---------------------------|--|-----------------|----------------------------------|----------------------|----------------------------------|---|
| (\$ in millions) | | | | | | |
| Jan. 1, 2004 | | | | | | |
| Net income revised (LIFO) | | | | 16 | | A footnote should
indicate that the
beginning retained
earnings balance was
\$80 million more
than it should have
been. |
| Dividends | | | | (40) | | |
| Dec. 31, 2004 | | | | \$1,026 | | |
| Net income revised (FIFO) | | | | 195 | | |
| Dividends | | | | (40) | | |
| Dec. 31, 2005 | | | | \$1,181 | | |
| Net income using FIFO | | | | 210 | | |
| Dividends | | | | (40) | | |
| Dec. 31, 2006 | | | | \$1,351 | | |

2. Adjust Accounts for the Change. Besides reporting revised amounts in the comparative financial statements, Air Parts must also adjust the book balances of affected accounts. It does so by creating a journal entry to change those balances from their current amounts (from using LIFO) to what those balances would have been using the newly adopted method (FIFO). As discussed in the previous section, differences in cost of goods sold and income are reflected in retained earnings, so are the income tax effects of changes in income. So, the journal entry updates inventory, retained earnings, and the income tax liability for revisions resulting from differences in the LIFO and FIFO methods prior to the switch, pre-2006. Repeating a portion of the calculations we made in Illustration 20-1A, we determine the difference in cost of goods sold and therefore in inventory.

| | | (\$ in millions) | | Cumulative
Difference
pre-2004 | Cumulative
Difference
pre-2006 | Cost of goods sold
would have been \$400
million less than
reported if FIFO had
been used in years
before 2006. |
|---------------------------|-------|------------------|---------|--------------------------------------|--------------------------------------|--|
| | 2005 | 2004 | | | | |
| Cost of goods sold (LIFO) | \$420 | \$405 | \$1,000 | | | |
| Cost of goods sold (FIFO) | \$65 | \$60 | 700 | | | |
| Difference | \$355 | \$345 | \$300 | \$400 | | |

The cumulative difference in cost of goods sold also is the difference between the balance in inventory and what that balance would have been if the FIFO method, rather than LIFO, had been used before 2006. Inventory must be increased by that amount. Retained earnings must be increased also, but by only 60% of that amount, because income taxes would have been higher by 40% of the change in pretax income.

Journal entry to record the change in principle.

January 1, 2006

| | | |
|--|-----|-----|
| Inventory additions (Inventory if FIFO had been used) | 400 | |
| Retained earnings (cost of goods sold if FIFO had been used) | | 240 |
| Deferred tax liability (40% = 40%) | | 60 |

Inventory would have been \$400 million more and earnings prior to 2006 \$240 more if FIFO had been used. The 40% of the change in pretax income had been taxes.

Notice that the income tax effect is reflected in the deferred income tax liability. The reason is that an accounting method chosen for tax purposes cannot be changed retrospectively for prior years. The Internal Revenue Code requires that taxes saved previously (\$160 million in this case) from having used another inventory method must now be repaid (over no longer than six years). Recall from Chapter 16 that in the meantime, there is a temporary difference, reflected in the deferred tax liability.

ADDITIONAL CONSIDERATION

What if the tax law did not require capture of the tax difference? There still would be a credit to the deferred tax liability. That's because net asset value increasing so accounting income is not taxable income creates a temporary difference between the two that will reverse over time as unsold inventory becomes cost of goods sold. When that happens, taxable income will be some higher than accounting income—a future taxable amount—creating a deferred liability.

If we were switching from FIFO to say the average method, we would record a deferred tax asset ahead of a financial reporting purposes but not for tax. We would be retroactively decreasing accounting income but not taxable income. This creates a temporary difference between the two that will reverse over time as the unsold inventory becomes cost of goods sold. When that happens, taxable income will be less than accounting income. When taxable income will be less than accounting income as a temporary difference reverses, we have a "future deductible amount" and record a deferred tax asset.

note: disclosure
must include:
• why needed as
a correction
• how corrected
• if a correction
statement

3. Disclosure Notes. To achieve consistency and comparability, accounting choices made should be consistently followed from year to year. Any change, then, requires that the new method be justified as clearly more appropriate. In the first set of financial statements under the changed disclosure rule, we need to provide that disclosure. The notable situation point is that if comparative information has been reviewed, or dated retrospectively, and has not been made because it is impracticable, and report any per share amounts affected for the current period and all prior periods presented. Disclosure of a recent change in Millicorp, Inc. in its 2006 annual report provides the example shown in Graphic 20-3.

GRAPHIC 20-3

Disclosure of a change in inventory method.
Millicorp, Inc.

Change in Method of Accounting

In the fourth quarter of 2004, Millicorp, Inc. changed its method of accounting for inventory from the first-in, first-out (FIFO) method to the last-in, first-out (LIFO) method. The change was made to better reflect the company's cost of goods sold and to conform with the accounting principles of the Financial Accounting Standards Board (FASB). The change was applied retroactively to all prior periods presented in the company's financial statements.

The change in method of accounting for inventory from FIFO to LIFO resulted in a decrease in the company's net income for the fourth quarter of 2004. The change was also reflected in the company's earnings per share and diluted earnings per share. The change in method of accounting for inventory from FIFO to LIFO is a change in accounting principle, and as such, it requires retrospective application of the new method to all prior periods presented in the company's financial statements.

THE PROSPECTIVE APPROACH

Although we usually report voluntary changes in accounting principles retrospectively, it is not always practicable or appropriate to do so.

LO3 The Prospective Approach: When Retrospective Application Is Impracticable

For some changes in principle, insufficient information is available for retrospective application to be practicable. Revising balances in prior years means knowing what those balances should be. But suppose we are switching from the FIFO method of inventory costing to the LIFO method. Recall from your study of inventory costing methods that LIFO inventory consists of "layers" added in prior years at costs existing in those years. If another method has been used, though, the company likely hasn't kept track of those costs. So, accounting records of prior years usually are inadequate to report the change retrospectively. In that case, a company changing to LIFO usually reports the change prospectively, and the beginning balances in the year he or she adopts LIFO become the base year inventory for all future LIFO calculations. Footnote disclosures should indicate reasons why retrospective application was impracticable.

disclosure: how of
financial impact
prior to change
year of change
• how the change
affects the financial
statements

PERSPECTIVE

A joint goal of the FASB and the International Accounting Standards Board is to increase convergence of U.S. and international financial reporting standards. Requiring retrospective application of changes in accounting principle is an example of adapting U.S. GAAP to achieve uniformity in this area. Prior to 2004, the practice in the U.S. was to present prior financial statements as previously reported and to report the cumulative effect of a change in accounting principle as a line item in the income statement of the change year.

We Account for

Business estimates that may require a change in accounting estimate

The Prospective Approach: Changing Depreciation, Amortization, and Depletion Methods. A change in depreciation methods is considered to be a change in accounting estimate that is achieved by a change in accounting principle. As a result, we account for such a change prospectively—precisely the way we account for changes in estimates. We discuss that approach in the next section.

Change in Accounting Estimate

LO 4

You've encountered many business decisions during this chapter that require estimates in order to make predictions of uncertain future events. Depreciation, for example, entails estimates not only of the useful lives of depreciable assets but their anticipated residual values as well. Anticipating uncollectible accounts receivable, predicting warranty expenses, amortizing intangible assets, and making actuarial assumptions for pension benefits are but a few of the accounting tasks that require estimates.

Business estimates that may require a change in accounting estimate

Accordingly, estimates are an inherent aspect of accounting. Unfortunately, though, estimates routinely turn out to be wrong. No matter how carefully known facts are considered and forecasts are prepared, new information and experience frequently force the revision of estimates. (Of course, if the original estimate was based on erroneous information or calculations or was not made in good faith, the revision of that estimate constitutes the correction of an error.)

A change in accounting estimate is accounted for prospectively. When a company revises a previous estimate, prior financial statements are not revised. Instead, the company merely incorporates the new estimate in any related accounting determinations from then on. So, usually we affect some expense or liability estimate sheet and the income statement for the current period and future periods. A disclosure note should describe the effect of a change in estimate on income before extraordinary items, net income, and related per share amounts for the current period.

Changes in accounting estimates are accounted for prospectively. When a company revises a previous estimate, prior financial statements are not revised. Instead, the company merely incorporates the new estimate in any related accounting determinations from then on. So, usually we affect some expense or liability estimate sheet and the income statement for the current period and future periods. A disclosure note should describe the effect of a change in estimate on income before extraordinary items, net income, and related per share amounts for the current period.

When Owens-Corning Fiberglass revised estimates of the useful lives of some of its depreciable assets, the change was disclosed in its annual report as shown in Graphic 20-5.

GRAPHIC 20-5
Change in Estimate—
Owens-Corning
Fiberglass Corporation

| Note 6: Depreciation of Plant and Equipment (in part) | |
|---|---|
| As previously reported, we have been depreciating certain assets over their estimated useful lives of 10 to 15 years. In 2004, we determined that the useful lives of certain assets should be revised to 10 to 12 years. This change in estimate will result in a decrease in depreciation expense of approximately \$5 million for the year ended December 31, 2004, and will result in a decrease in depreciation expense of approximately \$5 million for the year ended December 31, 2005. | As previously reported, we have been depreciating certain assets over their estimated useful lives of 10 to 15 years. In 2004, we determined that the useful lives of certain assets should be revised to 10 to 12 years. This change in estimate will result in a decrease in depreciation expense of approximately \$5 million for the year ended December 31, 2004, and will result in a decrease in depreciation expense of approximately \$5 million for the year ended December 31, 2005. |

An example of another change in estimate is provided in Illustration 20-2.

Universal Semiconductors estimates bad debt expense as 3% of credit sales. After a review of prior years' financial statements, management estimates that 3% of credit sales is more appropriate. Credit sales in 2016 are \$300 million.

Neither bad debt expense nor the allowance for uncollectible accounts reported in prior years is restated. No adjustment is required. The entry to correct the estimate change is first recorded in current period. For example, in 2016 and after years, the adjusting entry to record bad debt expense properly will reflect the new percentage. In 2016, the entry would be:

| | |
|--------------------------------------|------------------|
| | (\$ in millions) |
| Bad debt expense 3% = \$9 million | 9 |
| Allowance for uncollectible accounts | 9 |

The after-tax effect of the change in estimate is \$9 million, $(\$9 \text{ million} \times (34\% - 29\%)) = \3 million , less 40% of \$3 million. Assuming 100 million outstanding shares of common stock, the effect is described in a disclosure note of the financial statements as follows:

Note A: Accounts Receivable

In 2016, the company revised the percentage used to estimate bad debts. The change from 3% to 3% of credit sales resulted in a decrease of \$9 million. The change was applied to 2016 net income by a charge of \$3 million per share.

CHANGING DEPRECIATION, AMORTIZATION, AND DEPLETION METHODS

When a company acquires an asset that will provide benefits for several years, it allocates the cost of the asset over the asset's useful life. If the asset is a building, equipment, or other tangible operational asset, the allocation process is called *depreciation*. It's referred to as *amortization* if an intangible asset or *depletion* if a natural resource. In each case, estimates are essential. In the allocation process, how long will benefits accrue? What will be the value of the asset when its use is discontinued? Will the benefits be realized evenly over the asset's life or will they be higher in some years than in others?

The choice of depreciation method and application reflects these estimates. Likewise, when a company changes the way it depreciates an asset in midstream, the change would be made to reflect a change in (a) estimated future benefits from the asset, (b) the pattern of receiving those benefits, or (c) the company's knowledge about those benefits. For instance, suppose Universal Semiconductors originally chose an accelerated depreciation method because it expected greater benefits in the earlier years of an asset's life. Then, two years later, when it became apparent that remaining benefits would be realized approximately evenly over the remaining useful life, Universal Semiconductor switched to straight-line depreciation. Even though the company is changing its depreciation method, it is doing so to reflect changes in its estimates of future benefits. As a result, we report a change in depreciation method as a change in estimate, rather than as a change in accounting principle.

For this reason, a company reports a change in depreciation method (say to straight-line) prospectively: previous financial statements are not revised. Instead, the company simply employs the straight-line method from then on. The undepreciated cost remaining at the time of the change would be depreciated straight-line over the remaining useful life. Illustration 20-3 on the next page provides an example.

Is a change in depreciation method a change in accounting principle, or is it a change in estimate? As we've seen, it's both! Even though it's considered to reflect a change in estimate and is accounted for as such, a change to a new depreciation method requires the company to justify the new method as being preferable to the previous method, just as for any

ILLUSTRATION 20-2

Change in Accounting Estimate

FINANCIAL REPORTING CASE

Case 1009

An exception to the general rule that a change in accounting principle is a change in the method of application of an accounting principle is a change in the method of application of a depreciation method.

Companies report a change in depreciation method prospectively.

A company must justify any change in depreciation method.

ILLUSTRATION 20-3

Change in depreciation methods

Universal Semiconductors switched from the SYD depreciation method to straight-line depreciation in 2006. The change affects its precision equipment purchased at the beginning of 2004 at a cost of \$63 million. The machinery has an expected useful life of five years and an estimated residual value of \$3 million.

The depreciation prior to the change is as follows (\$ in millions):

Sum-of-the-Years'-Digits Depreciation

| | |
|--------------------------|-------------------------------|
| 2004 Depreciation | \$20 $\$60 \div 5 \times 5/5$ |
| 2005 Depreciation | 16 $\$60 \div 5 \times 4/5$ |
| Accumulated depreciation | \$36 |

A change in depreciation method is considered a change in accounting estimate resulting from a change in accounting principle. Universal Semiconductors reports the change prospectively; previous financial statements are not revised. Instead, the company simply employs the straight-line method from 2006 on. The undepreciated cost remaining at the time of the change is depreciated straight-line over the remaining useful life.

Calculation of Straight-Line Depreciation

(\$ in millions)

| | |
|--|----------------|
| Asset's cost | \$63 |
| Accumulated depreciation to date (calculated above) | (36) |
| Undepreciated cost, Jan. 1, 2006 | \$27 |
| Estimated residual value | (3) |
| To be depreciated over remaining 3 years | \$24 |
| | 3 years |
| Annual straight-line depreciation 2006–2008 | \$ 8 |
| Adjusting entry (2006, 2007, and 2008 depreciation): | \$ in millions |
| Depreciation expense (calculated above) | 8 |
| Accumulated depreciation | 8 |

The \$24 million depreciable cost net of accumulated depreciation is spread over the asset's remaining three years.

other change in principle. A disclosure note should justify that the change is preferable and describe the effect of a change on any financial statement line items and per share amounts affected for all periods reported.

In practice, the situation arises infrequently. Most companies changing depreciation methods do not apply the change to existing assets, but instead to assets placed in service after that date. In those cases, of course, the new method is simply applied prospectively (see Graphic 20-5).

GRAPHIC 20-4

Change in depreciation method for newly acquired assets: Kishin and Hase Company

Note 12 Land, Buildings, and Equipment, Net (in part)

The company changed its method of depreciation for newly acquired buildings and equipment from straight-line method to change method in 2004. The change was applied prospectively, but did not affect prior year earnings by \$9 million, or \$4 per share.

When it is not possible to distinguish between a change in principle and a change in estimate, the change should be treated as a change in estimate.

Sometimes, it's not easy to distinguish between a change in principle and a change in estimate. For example, if a company begins to capitalize rather than expense the cost of tools because their benefits beyond one year became apparent, the change could be construed as either a change in principle or a change in the estimated life of the asset. When the distinction is not possible, the change should be treated as a change in estimate. This treatment also is appropriate when both a change in principle and a change in estimate occur simultaneously.

Change in Reporting Entity

LO6

A reporting entity can be a single company, or it can be a group of companies that reports a single set of financial statements. For example, the consolidated financial statements of



Philip Morris Inc. report the financial position and results of operations not only for the parent tobacco company but also for its subsidiaries which include Kraft Foods and Miller Brewing Company. Sometimes, changes occur that cause the financial statements to be those of a different reporting entity. The example of SFAS 94 "Consolidation of All Majority-Owned Subsidiaries" that is included in this chapter is an illustration of this. Philip Morris' consolidated financial statements now include its finance subsidiary, GMAC, as part of the reporting entity. A change in reporting entity occurs as a result of (1) presenting consolidated financial statements if placed in financial statements or (2) changing specific companies disclosed in the consolidated financial statements.

A change in reporting entity is reported by recasting all previous periods' financial statements as if the new reporting entity existed in those periods.¹² In the first set of financial statements after the change, a disclosure note should describe the nature of the change and the reason it occurred. Also, the effect of the change on net income, income before extraordinary items, and related per share amounts should be indicated for all periods presented. These disclosures aren't necessary in subsequent financial statements. Hewlett-Packard Company changed the composition of its reporting entity in response to SFAS 94 and described it this way:

The effect of SFAS 94 on the Company's financial statements is as follows:

A change in reporting entity is required when the reporting entity is changed. The new reporting entity is the one that is reported.

Note 12: Accounting and Reporting Changes (in part)

As a result of the adoption of SFAS 94, the Company's consolidated financial statements for the year ended December 31, 1994, include the financial statements of the Company's wholly owned subsidiary, which is not included in the consolidated financial statements for the year ended December 31, 1993. The Company's financial statements for the year ended December 31, 1993, are restated to reflect the inclusion of the subsidiary's financial statements for the year ended December 31, 1993.

As a result of SFAS 94, the Company's consolidated financial statements for the year ended December 31, 1994, include the financial statements of the Company's wholly owned subsidiary, which is not included in the consolidated financial statements for the year ended December 31, 1993. The Company's financial statements for the year ended December 31, 1993, are restated to reflect the inclusion of the subsidiary's financial statements for the year ended December 31, 1993.

Chapter 20-7

Change in Reporting Entity
Hewlett-Packard Company

Error Correction

The correction of an error is not actually an accounting change but is accounted for similarly. In fact, it's accounted for retrospectively like a change in reporting entity and like most changes in accounting principle.

More specifically, previous years' financial statements that were incorrect as a result of the error are retrospectively restated to reflect the correction. And, of course, any account balances that are incorrect as a result of the error are corrected by a journal entry. If retained earnings is one of the incorrect accounts, the correction is reported as a prior period adjustment to the beginning balance of a statement of shareholders' equity (or statement of retained earnings) that's presented (revised).¹³ And, as for accounting changes, a disclosure note is needed to describe the nature of the error and the impact of its correction on operations. We discuss the correction of errors in more detail in Part 9 of this chapter. But first, let's compare the two approaches for reporting accounting changes and error corrections (Graphic 20-8).

Previous years' financial statements are restated to reflect the correction of an error.

As a result of the adoption of SFAS 94, the Company's consolidated financial statements for the year ended December 31, 1994, include the financial statements of the Company's wholly owned subsidiary, which is not included in the consolidated financial statements for the year ended December 31, 1993. The Company's financial statements for the year ended December 31, 1993, are restated to reflect the inclusion of the subsidiary's financial statements for the year ended December 31, 1993.

Approaches to Reporting Accounting Changes and Error

[illegible]

A comparison of accounting treatments is provided by Graphic 20-9.

GRAPHIC 20-9 Accounting Changes and Errors: A Summary

| | Retrospective | Prospective | Prospective | Retrospective | Retrospective |
|--|---|--|--|---|---|
| As adjustment to period earnings of interest year reported | Yes | No
Not reported | No
Not reported | Yes
Not reported | No
As adjustment to interest earnings year reported |
| To adjust affected balances to new method | To adjust affected balances to new method | None but subsequent accounting is affected by the change | None but subsequent accounting is affected by the change | Involves consolidated financial statements disclosed in notes | Involves consolidated financial statements disclosed in notes |
| | Yes | Yes | Yes | Yes | Yes |

[illegible]

CONCEPT REVIEW EXERCISE

ACCOUNTING CHANGES

Modern Business Machines recently conducted an extensive review of its accounting and reporting policies. The following accounting changes are an outgrowth of that review:

- 1) IBM has a patent on a copier design. The patent has been amortized on a straight-line basis since it was acquired at a cost of \$400,000 in 2003. During 2006, it was decided that the benefits from the patent would be experienced over a total of 13 years rather than the 20-year legal life now being used to amortize its cost.
- 2) At the beginning of 2006, IBM changed its method of valuing inventory from the FIFO cost method to the average cost method. At December 31, 2005 and 2006, IBM's inventories were \$360 and \$340 million, respectively, on a FIFO cost basis but would have totaled \$360 and \$490 million, respectively, if determined on an average cost basis. IBM's income tax rate is 40%.

Required:

Prepare all journal entries needed in 2006 related to each change. Also, briefly describe any other measures MBM would take in connection with reporting the changes.

1. Change in estimate

SOLUTION

| | \$ in 2006 |
|--|------------|
| Patent amortization expense (determined below) | 34 |
| Patent | 34 |

Calculation of Annual Amortization after the Estimate Change

| | | |
|-----------|-----------|--|
| | \$400,000 | Cost |
| \$20,000 | | Old annual amortization (\$400,000 ÷ 20 years) |
| × 3 years | (60,000) | Amortization to date (2003, 2004, 2005) |
| | 340,000 | Unamortized cost |
| | 10 | Estimated remaining life (3 years ÷ 3 years) |
| | \$ 34,000 | New annual amortization |

A disclosure note should describe the effect of a change in estimate on income before extraordinary items, net income, and related per-share amounts for the current period.

2. Change in principle

MBM creates a journal entry to bring up to date all account balances affected.

| | \$ in millions |
|---|----------------|
| Retained earnings (no difference in net income before 2005) | 46 |
| Debt (retained stock \$80 million ÷ 10%) | 24 |
| Investment \$500 million ÷ \$500 million | 60 |

For financial reporting purposes, but not for tax, MBM is prospectively decreasing accounting income but not taxable income. This creates a temporary difference between the two that will reverse over time as the unsold inventory becomes cost of goods sold. When that happens, taxable income will be less than accounting income. When taxable income will be less than accounting income as a temporary difference reverses, we have a "future deductible amount" and record a deferred tax asset.

Also, MBM will revise all previous period's financial statements (in this case 2005) as if the new method (average cost) were used in those periods. In other words, for each year in the comparative statements reported, the balance of each account affected will be revised to appear as if the average method had been applied all along.

Since retained earnings is one of the accounts whose balance requires adjustment (and, usually is), MBM makes an adjustment to the beginning balance of retained earnings for the earliest period (2005) reported in the comparative statements of shareholders' equity. Also in the first set of financial statements after the change, a *disclosure note* describes the nature of the change, justifies management's decision to make the change, and indicates its effect on each item affected in the financial statements.

Prospective financial statements are issued to reflect the use of the new accounting method.

Since it is the first year reported, 2005 is beginning and the ending balance of retained earnings is reported in the balance of beginning retained earnings after the change, which will be prior to 2005.

CORRECTION OF ACCOUNTING ERRORS

Nobody's perfect. People make mistakes, even accountants. When errors are discovered, they should be corrected. ²Graphic 20-10 describes the steps to be taken to correct an error, if the effect of the error is material.³

Accounting errors are divided into two categories: *errors of principle* and *errors of fact*. Errors of principle are errors of judgment that result from a misapplication of accounting principles. Errors of fact are errors of fact that result from a misstatement of facts. Errors of principle are more serious than errors of fact because they involve a misstatement of accounting principles. Errors of fact are less serious because they involve a misstatement of facts. Errors of principle are more difficult to detect than errors of fact because they involve a misstatement of accounting principles. Errors of fact are easier to detect because they involve a misstatement of facts.

PART B

LO6



GRAPHIC 20-10**Steps to Correct an Error**

The error correction step should be taken to correct the error.

The error correction step should be taken to correct the error.

1. A journal entry is made to correct an account balance that was incorrect as a result of the error.
2. Prior years' financial statements were incorrect as a result of the error and are only available to reflect the error if all years' reports are being restated.
3. A balance sheet is prepared for the current year and the error is corrected in the current year's opening balance sheet.
4. A balance sheet is prepared for the current year and the error is corrected in the current year's opening balance sheet.

Prior Period Adjustments

Before we see these steps applied to the correction of an error, one of the steps requires clarification. As discussed in Chapter 4, the correction of errors is the more common of only two situations that are considered to be prior period adjustments.¹² A prior period adjustment refers to an addition to or reduction in the beginning retained earnings balance in a statement of shareholders' equity (or statement of retained earnings if that is presented instead).

In an earlier chapter we saw that a statement of shareholders' equity is the most commonly used way to report the elements that cause a component of shareholders' equity to change during a particular reporting period. Some companies, though, choose to report the changes that occur in the balance of retained earnings separately in a statement of retained earnings. When it is discovered that the ending balance of retained earnings in the period prior to the first year of an error was incorrect as a result of an error, the balance must be restated when it appears as the beginning balance the following year. However, simply reporting a restatement amount might cause misunderstanding for someone familiar with the previously presented amounts. Explicitly reporting a prior period adjustment in the statement of shareholders' equity is a solution. Assume, for example, the following comparative statements of retained earnings:

STATEMENTS OF RETAINED EARNINGS For the Years Ended December 31, 2005 and 2004

A statement of retained earnings reports the events that cause changes in retained earnings.

| | 2005 | 2004 |
|------------------------------|-----------|-----------|
| Balance at beginning of year | \$600,000 | \$450,000 |
| Net income | 400,000 | 350,000 |
| Less: Dividends | (200,000) | (200,000) |
| Balance at end of year | \$800,000 | \$600,000 |

Now suppose that in 2006 it is discovered that an error in 2004 caused that year's net income to be overstated by \$70,000 (it should have been \$350,000). This means retained earnings for both years were overstated. In preparing statements for the following year, when the error is discovered, would include a prior period adjustment as shown below:

STATEMENTS OF RETAINED EARNINGS For the Years Ended December 31, 2006 and 2005

The prior period adjustment is shown as a separate line item.

| | 2006 | 2005 |
|------------------------------|-------------|-----------|
| Balance at beginning of year | \$ 780,000 | \$600,000 |
| Prior period adjustment | | |
| Corrected balance | | \$580,000 |
| Net income | 500,000 | 400,000 |
| Less: Dividends | (200,000) | (200,000) |
| Balance at end of year | \$1,080,000 | \$780,000 |

¹²The other is an adjustment that results from the evaluation of an error as benefits of prior periods expiring from which the error should be reversed. See "Prior Period Adjustments," *Statements of Financial Accounting Standards No. 18*, Staff Accounting Bulletin No. 99, issued by the FASB.

¹³For the purposes of this chapter, we will assume that the error is not a prior period adjustment.

All listed two years (as in our example) and often three years' statements are reported on comparative financial statements. The prior period adjustment is applied to beginning retained earnings for the year following the error, or for the earliest year being reported in the comparative financial statements when the error occurs prior to the earliest year presented.⁵

Error Correction Illustrated

Now, let's discuss these procedures as correct errors in the context of a variety of the most common types of crimes. Since there are literally thousands of possibilities, it is not practical to describe every error in every stage of its discovery. However, by applying the process to the situations described below, you should become sufficiently comfortable with the process that you could apply it to whatever situation you might encounter.

As you study these examples, be sure to notice that it's significantly more complicated to deal with an error if it's an affected net income in the reporting period in which it occurred and if it is not discovered until a later period.

ERROR DISCOVERED IN THE SAME REPORTING PERIOD THAT IT OCCURRED

If an accounting error is made and discovered in the same accounting period, the original erroneous entry should simply be reversed and the appropriate entry recorded. The possibilities are limitless. Let's look at the one in Illustration 20-4.

The bill for the \$3 million to replace computers and related items was expended as maintenance expense. The error was discovered a week later.

| To Reverse Erroneous Entry | | % in millions |
|----------------------------|---|---------------|
| cash | 3 | |
| Main source expense | | 3 |
| To Record Correct Entry | | |
| quintuple | 3 | |
| cash | | |

[illegible]

ERROR AFFECTING PREVIOUS FINANCIAL STATEMENTS BUT NOT NET INCOME

¹¹ An error that may affect net income in the year it occurred, it's relatively easy to correct. Examples are incorrectly recording salaries payable as accounts payable, recording a loss as an expense, or classifying a cash flow as an investing activity rather than a financing activity on the statement of cash flows. A 2005 restatement by Kirkland's, Inc. reproduced in Graphix 20-1 provides an example. It, version 20-5, provides another.

Note 2 Restatement of Financial Statements (in part)

[illegible]

most all warning systems go with FSB. Let's call it β . A. or to go with a merit-based system, the strong results in an increase in the rate of arrests do not have any impact

[illegible]

Illustration 20-4
Error Discovered in
the Same Reporting
Period That It
Occurred

GRAPHIC 20-11
Enter Collection:
Kirkland's, Inc.

[illegible]

...and the other side of the coin...

ILLUSTRATION 20-5
Error Affecting
Previous Financial
Statements but Not
Net Income

Step 1

Step 2

Step 3

Step 4

MDS Transportation incorrectly recorded a \$2 million note receivable as accounts receivable. The error was discovered a year later.

To Correct Incorrect Accounts

Note receivable

Accounts receivable

(\$ in millions)

0

+

When reported on the prior year's balance sheet, would be restated to report it as if it were last year's ending balance. It would not be restated in current year's period. A disclosure note would describe the net income before extraordinary

items and would show report last year's balance as it should have been reported last year by the error. The balance in retained earnings would be adjusted if necessary. The error of the error, but there would be no impact on net income and earnings per share in report.

ERROR AFFECTING A PRIOR YEAR'S NET INCOME

Most errors affect net income in some way. When they do, they affect the balance sheet as well. Both statements must be retrospectively restated: the statement of cash flows and times is affected, too. As with any error, the incorrect account balances must be corrected. Because these errors affect income, one of the balances that will require correcting is retained earnings. Complicating matters, income taxes often are affected by income errors. In those cases, amended tax returns are prepared either to pay additional taxes or to claim a refund for taxes overpaid.

In Illustration 20-6 (except as indicated), we ignore the tax effects of the errors and the correction to allow us to focus on the errors themselves rather than their tax aspects.

ILLUSTRATION 20-6
Error Affecting Net
Income According to
Asset as an Expense

On January 1, 2004, Seidman Distribution Inc. purchased equipment for \$7 million. The equipment is depreciated on a straight-line basis over five years with no residual value. Straight-line depreciation is used by Seidman.

Analysis:

(\$ in millions)

| | Correct
(Should have been recorded) | | Incorrect
(As recorded) | |
|------|--|-----|----------------------------|-----|
| 2004 | Equipment | 7.0 | Expense | 0 |
| | Cash | 7.0 | Cash | 7.0 |
| 2004 | Expense | 1.4 | Depreciation entry omitted | |
| | Accum. deprec. | 1.4 | | |
| 2005 | Expense | 1.4 | Depreciation entry omitted | |
| | Accum. deprec. | 2.8 | | |

During the two-year period, depreciation expenses were understated by \$2.8 million, so net income during this period was understated by \$2.8 million. This means that accumulated depreciation is understated

expense was understated by \$2.8 million, but net income during this period was understated by \$2.8 million. This means that accumulated depreciation is understated

To Correct Incorrect Accounts

Equipment

Accumulated depreciation

Retained earnings

(\$ in millions)

0

2.8

The 2004 and 2005 financial statements retrospectively restated to report the equipment depreciation expense and accumulated depreciation for comparative purposes in the 2005

Because retained earnings is one of the balances that will require correcting, beginning retained earnings, income statement, and balance sheet would be restated. That prior period adjustment, though, will

that were incorrect as a result of the error are restated to report the correct amount of depreciation, assuming both statements are reported annually.

Because retained earnings is one of the balances that will require correcting, beginning retained earnings, income statement, and balance sheet would be restated. That prior period adjustment, though, will

million, \$5.4 million. If 2004 statements also are included, judgment would be necessary for that period because the error began in 2004.

Also, a disclosure note comparing Seedman's 2006 income before the error, the error correction, and the corrected depreciation by \$5.6 million in 2004 and over-corrected by \$1.4 million in 2005 (extraordinary items, same as net income), and earnings per

share comparative report, no adjustment would be necessary until after the error occurred until after the error occurred.

For 2006, the error should be corrected by \$5.6 million in 2004 and over-corrected by \$1.4 million in 2005 (extraordinary items, same as net income), and earnings per

Illustration 20-6

concluded

For 2006, the error should be corrected by \$5.6 million in 2004 and over-corrected by \$1.4 million in 2005 (extraordinary items, same as net income), and earnings per

The effect of minor errors is different depending on when the error is discovered. For example, if the error in Illustration 20-6 is not discovered until 2007 rather than 2006, accumulated depreciation would be understated by another \$1.4 million, or a total of \$4.2 million. If not discovered until 2008 or after, no correcting entry at all would be needed. By then, the sum of the applied depreciation amounts, \$1.4 million \times 5 years, would equal the expense incorrectly recorded in 2004 (\$7 million), so the retained earnings balance would be the same as if the error never had occurred. Also, the asset would have been charged off—if the useful life estimate was correct—so neither the equipment nor accumulated depreciation would need to be recorded. Of course, any statements of prior years that were affected and in conformity with GAAP would be restated, and a footnote would describe the error.

Minor errors, in fact, eventually self-correct. An example of an uncommon instance in which an error never self-corrects would be an expense account debited for the cost of land. Because land does not depreciate, the error would continue until the land is sold.

Some errors correct themselves the following year. For instance, if a company's ending inventory is incorrectly counted or otherwise misstated, the income statement would be in error for the year of the error and the following year, but the balance sheet would be incorrect only for the year the error occurs. After that, all account balances will be correct. This is demonstrated in Illustration 20-7 on the next page.

Even when the error is not discovered until the following year, the error will be corrected by the end of the year. For example, if a company's ending inventory is incorrectly counted or otherwise misstated, the income statement would be in error for the year of the error and the following year, but the balance sheet would be incorrect only for the year the error occurs. After that, all account balances will be correct. This is demonstrated in Illustration 20-7 on the next page.

ADDITIONAL CONSIDERATION

We ignored the tax impact of the error and its correction. To consider taxes, we need to know whether depreciation was taken and the depreciation methods used for tax reporting was omitted from the tax return also, and that straight-line depreciation was used for both tax and financial reporting. The asset is

operating expenses, net of tax, still would have been overstated over the two-year period. But that would have caused the tax liability and income tax expense to be overstated and the net income and retained earnings understated by only \$2.52 million.

| | |
|---|------------------|
| Operating expenses overstated | \$4.20 million |
| Income tax expense understated | .68 million |
| Net income and retained earnings understated | \$2.52 million |
| To Correct Incorrect Accounts | (\$ in millions) |
| Equipment | TO |
| Accumulated depreciation | 5.80 |
| Income tax payable (40% \times \$4.2 million) | .68 |
| Retained earnings | 2.52 |

If depreciation had been omitted from the income statement but not from the tax return, or if accelerated depreciation was used for tax reporting but straight-line depreciation in financial reporting, the credit to income tax payable in the correcting entry would be replaced by a credit to deferred tax liability.

in Illustration 20-6. To consider taxes, we need to know whether depreciation was taken and the depreciation methods used for tax reporting was omitted from the tax return also, and that straight-line depreciation was used for both tax and financial reporting. The asset is

operating expenses, net of tax, still would have been overstated over the two-year period. But that would have caused the tax liability and income tax expense to be overstated and the net income and retained earnings understated by only \$2.52 million.

ILLUSTRATION 20-7

Error Affecting Net Income: Inventory Misstated

When an error occurs in the ending inventory count, it affects the cost of goods sold and net income. If the ending inventory is understated, the cost of goods sold is overstated, and net income is understated. If the ending inventory is overstated, the cost of goods sold is understated, and net income is overstated.

Step 1

Step 2

Step 3

Step 4

In early 2006, Overseas Wholesale Supply discovered that \$1 million of inventory had been inadvertently excluded from its 2004 ending inventory count.

Analysis

U Understated O Overstated

| | 2004 | | 2005 |
|--------------------------|------|---|--------------------------|
| Beginning inventory | | → | Understated |
| Plus: Net purchases | | | Plus: Net purchases |
| Less: Ending inventory | U | | Less: Ending inventory |
| Cost of goods sold | O | | Cost of goods sold |
| Revenues | | | Revenues |
| Less: Cost of goods sold | O | | Less: Cost of goods sold |
| Less: Other expenses | | | Less: Other expenses |
| Net income | U | | Net income |
| ↓ | | | ↓ |
| Retained earnings | U | | Retained earnings |

If Error Is Discovered in 2005 (before closing):

Inventory

Retained earnings

\$ in millions

1

If Error Discovered in 2006 or Later:

No correcting entry needed

If the error is discovered in 2005, the 2004 financial statements that were incorrect as a result of the error are retrospectively restated. The cost of goods sold and net income were understated, and net purchases in the 2005 annual report statements also are retrospectively stated at goods sold (retained earnings would not be affected). If the error is discovered in 2006 or later, no correcting entry would be needed at that point.

Because retained earnings is one of the accounts affected by the error, the correction to the account is recorded as a prior period adjustment. If the error is discovered in 2005, the 2005 financial statements are reported again, but the error is corrected. If the error is discovered in 2006 or later, the 2005 financial statements are reported as is, and the error is corrected in the 2006 financial statements.

Also, a disclosure note in Overseas' annual report should describe the nature of the error and the impact of its correction on net income. Net income was understated by \$1 million in 2004 and overstated by \$1 million in 2005. The error also affects extraordinary items (same as net income) and earnings per share.

Other error corrections that benefit from a similar analysis are the overstatement of ending inventory, the overstatement or understatement of beginning inventory, and errors in recording merchandise purchases (or returns).

An error also would occur if a revenue or an expense is recorded in the wrong accounting period. Illustration 20-8 on the next page offers an example.

ETHICAL DILEMMA

As a second-year accountant for McCormack Chemical Company, you were excited to be named assistant manager of the Agricultural Chemicals Division. After two weeks in your new position, you were supervising the year-end inventory count when the senior manager mentioned that two cartons of herbicides were omitted from the count and should be added. Upon checking, you confirm your understanding that the inventory question had been deemed to be unresolvable. "Yes," your manager agreed, "but we'll leave that off next year when our bottom line won't be so critical to the continued existence of the Agricultural Chemicals Division. Jobs and families depend on our division showing well this year."

earnings had been overstated by \$2.7 million as a result of the error and the balance in retained earnings was accordingly decreased in the correcting journal entry. At about the same time, McDonald's Corp. recorded a similar charge of \$1.79 million.

As mentioned at the outset, we've made an attempt to demonstrate the correction process for every kind of error in every stage of its discovery. However, after seeing the process applied in the few situations described, you should feel comfortable that the process is the same regardless of the specific situation you might encounter.

CONCEPT REVIEW EXERCISE

CORRECTION OF ERRORS

In 2006, the following errors were discovered by the internal auditors of Development Technologies, Inc.

- 2005 accrued wages of \$2 million were not recognized until they were paid in 2006.
- A \$3 million purchase of merchandise in 2006 was recorded in 2005 instead. The physical inventory count at the end of 2005 was correct.

Required

Prepare the journal entries needed in 2006 to correct each error. Also, briefly describe any other measures Development Technologies would take in connection with correcting the errors. (Ignore income taxes.)

SOLUTION

Step 1

- To reduce 2006 wages expense and reduce retained earnings to what it would have been if the expense had reduced net income in 2005.

| | | |
|-------------------|---|----------------|
| | | \$ in millions |
| Retained earnings | ✓ | 2 |
| Wages expense | | 2 |

- To include the \$3 million in 2006 purchases and increase retained earnings to what it would have been if 2005 cost of goods sold had not included the \$3 million purchases.

Analysis

U = Understated O = Overstated

2005

| | |
|---------------------------------|---|
| Beginning inventory | |
| Plus: Purchases | |
| <u>Less: Ending inventory</u> | |
| Cost of goods sold | O |
| Revenue | |
| <u>Less: Cost of goods sold</u> | O |
| <u>Less: Other expenses</u> | |
| Net income | U |
| ↓ | |
| Retained earnings | U |

2006

| | |
|---------------------|--|
| Beginning inventory | |
| Purchases | |

| | | |
|-------------------|---|----------------|
| | | \$ in millions |
| Purchases | ✓ | 3 |
| Retained earnings | | |

Step 2:

The 2005 financial statements that were incorrect as a result of the errors would be *retrospectively restated* to reflect the correct wages expense, cost of goods sold (income less a profit if taxes are considered), net income, and retained earnings when those statements are reported again for comparative purposes in the 2006 annual report.

Step 3:

Because retained earnings is one of the accounts that is involved, the correction to that account is reported as a "prior period adjustment" to the 2006 beginning retained earnings balance in the comparative Statements of Shareholders' Equity.

Step 4:

Also, a disclosure note should describe the nature of the error and the impact of its correction on each year's net income, income before extraordinary items, and earnings per share.

FINANCIAL REPORTING CASE SOLUTION

How can an accounting change cause a company to increase a previously reported inventory amount? (page 1013) Spaulder didn't find any (or jelly. The company decreased the 2004 inventory number by \$2 million to reflect its change from LIFO to FIFO in 2005. If it had not revised the number, the 2004 inventory would be based on LIFO and the 2005 inventory on FIFO. Analysts would be comparing apples and oranges (or apple jelly and orange jelly). Retrospective application of an accounting change provides better comparability in accounting information.

- Are all accounting changes reported this way? (page 1019) No, all accounting changes are reported retrospectively. Besides most changes in accounting principle, changes in reporting entity and the correction of errors are reported that way, but *some* changes are reported prospectively. Changes in *estimate* are reported as an *estimate* through a *reversing estimate*, and some changes for which retrospective application is either impracticable or prohibited are reported prospectively in current and future periods only. ■

THE BOTTOM LINE

- Accounting changes are categorized as:

- Changes in *principle*
- Changes in *estimate*, or
- Changes in *reporting entity*

Accounting changes can be accounted for retrospectively (prior years revised) or prospectively (only current and future years affected).

- Most voluntary changes in accounting principles are reported retrospectively. This means revising all previous periods' financial statements to appear as if the newly adopted accounting method had been applied all along. A journal entry is created to adjust all account balances affected as of the date of the change. In the first set of financial statements after the change, a disclosure note describes the change and justifies the new method as preferable. It also describes the effects of the change on all items affected, including the fact that the retained earnings balance was revised in the statement of shareholders' equity.
- Some changes are reported prospectively. These include (a) changes in the method of depreciation, amortization, or depletion, (b) some changes in principle for which retrospective application is impracticable, and (c) a few changes for which an authoritative pronouncement requires prospective application.
- Changes in estimates are accounted for prospectively. When a company revises a previous estimate, prior financial statements are not revised. Instead, the company merely incorporates the new estimate in any related accounting determinations from then on.
- A change in reporting entity requires that financial statements of prior periods be retrospectively revised to report the financial information for the new reporting entity in all periods.
- When errors are discovered, they should be corrected just accounted for retrospectively. Previous years' financial statements that were incorrect as a result of an error are retrospectively restated, and any account balances that are incorrect are corrected by a journal entry. If retained earnings is one of the incorrect accounts, the correction is reported



as a prior period adjustment to the beginning balance in a statement of shareholders' equity. And, a disclosure note should describe the nature of the error and the impact of its correction on operations. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 20-1** For accounting purposes, we classify accounting changes into three categories. What are they? Provide a short description of each.
- Q 20-2** There are two basic accounting approaches to reporting accounting changes. What are they?
- Q 20-3** We report most changes in accounting principle retrospectively. Describe this general way of accounting and reporting change in accounting principle.
- Q 20-4** Lynch Corporation changes from the sum-of-the-years'-digits method of depreciation to the straight-line method. How should the change be reported?
- Q 20-5** Sunbaker Designs, Inc. changed from the FIFO inventory costing method to the average cost method during 2006. Which items from the 2005 financial statements should be restated on the basis of the average cost method when reported in the 2006 comparative financial statements?
- Q 20-6** Most accounting principles are recorded and reported retrospectively. In a few situations, though, the changes should be reported prospectively. When is prospective application appropriate?
- Q 20-7** Southeast Steel, Inc. changed from the FIFO inventory costing method to the LIFO method during 2005. How would this change likely be reported in the 2006 comparative financial statements?
- Q 20-8** Direct Insurance Company revised the estimates of the useful life of a trademark it had acquired three years earlier. How should Direct account for the change?
- Q 20-9** It is not easy sometimes to distinguish between a change in principle and a change in estimate. In this case, how should the change be accounted for?
- Q 20-10** For financial reporting, a reporting entity can be a single company, or it can be a group of companies that reports a single set of financial statements. When changes occur that cause the financial statements to be those of a different reporting entity, we account for the situation as a change in reporting entity. What are the situations deemed to constitute a change in reporting entity?
- Q 20-11** The issuance of SAS 99, "Consolidation of All Majority-Owned Subsidiaries," required Ford Motors to include a previously unconsolidated finance subsidiary as part of the reporting entity. How did Ford report the change?
- Q 20-12** Describe the process of correcting an error when it is discovered in a subsequent reporting period.
- Q 20-13** If men's-hats inventory is restated at the end of 2005 and the error is not discovered, how will net income be affected in 2006?
- Q 20-14** If it is discovered that an extraordinary repair in the previous year was incorrectly debited to repair expense, how will retained earnings be reported in the current year's statement of shareholders' equity?
- Q 20-15** What action is required when it is discovered that a five-year automobile premium payment of \$30,000 two years ago was debited to insurance expense? Ignore taxes.
- Q 20-16** Suppose the error described in the previous question is not discovered until six years later. What action will the discovery of this error require?

BRIEF EXERCISES

BE 20-1
Change in Inventory
Methods

• LO2

BE 20-2
Change in Inventory
Methods

• LO2

In 2006, the Carney Company changed its method of valuing inventory from the FIFO method to the average cost method. At December 31, 2005, Carney's inventories were \$32 million (FIFO). Carney's records indicate that the inventories should have totaled \$23.8 million at December 31, 2005 if determined on an average cost basis. Ignoring income taxes, what journal entry will Carney use to record the adjustment? Briefly describe the other steps Carney should take to report the change.

In 2006, DeWash Industries changed its method of valuing inventory from the average cost method to the FIFO method. At December 31, 2005, DeWash's inventories were \$47.6 million (average cost). DeWash's records indicate that the inventories should have totaled \$64.1 million at December 31, 2005 if determined on a FIFO basis. Ignoring income taxes, what journal entry will DeWash use to record the adjustment?

BE 20-3

Change in inventory
methods

LO 3

In 2006, Dorsey Markets changed its method of valuing inventory from the FIFO method to the LIFO method. At December 31, 2005, Dorsey's inventories were \$94 million. If 425,000 pounds were insufficient to determine which inventory method would have yielded a determined-in-a-LIFO cost basis. Briefly describe the steps Dorsey should take to report the change.

BE 20-4

Change in depreciation
methods

LO 2

In 2004, the estimated useful life of a machine was 5 years. Construction was completed at the end of 2003, and the machine was placed in service at the beginning of 2004. The machine was being depreciated on a 5-year life using the sum-of-the-years'-digits method. The residual value is expected to be \$2 million. At the beginning of 2006, Irwin decided to change to the straight-line method. Ignoring income taxes, what journal entry(ies) should Irwin record relating to the machine for 2006?

BE 20-5

Change in depreciation
methods

Refer to the situation described in BE 20-4. Suppose Irwin has been using the straight-line method and estimates in the sum-of-the-years'-digits method. Ignoring income taxes, what journal entry(ies) should Irwin record relating to the machine for 2006?

LO 3

BE 20-6

Change in estimate,
useful life of patent

LO 4

Van Frank Telecommunications has a patent for a cellular transmission process. The company has amortized its patent on a straight-line basis over 10 years, which it was acquired at a cost of \$5 million and is beginning its 11th year. Due to rapid technological changes in the industry, management decided that the patent would benefit the company over a total of six years rather than the nine-year life being used in amortizing its cost. The decision was made in the end of 2005, before adjusting and closing entries. What is the appropriate adjusting entry for patent amortization in 2006 to reflect the revised estimate?

LO 4

Error correction

LO 5

When Debbie Walter Works purchased a machine at the end of 2005 at a cost of \$65,000, the company debited Buildings and credited Cash \$65,000. The error was discovered in 2006. What journal entry will Debbie use to correct the error? What other steps would be taken in connection with the error?

LO 5

Error correction

LO 5

In 2006, internal auditors discovered that PKE Displays, Inc. had debited an expense account for the \$6,000 cost of a machine purchased on January 1, 2003. The machine's useful life was expected to be five years with no residual value. Straight-line depreciation is used by PKE. Ignoring income taxes, what journal entry will PKE use to correct the error?

LO 5

Error correction

LO 5

Refer to the situation described in BE 20-7. Assume the error was discovered in 2006 after the 2005 financial statements are issued. Ignoring income taxes, what journal entry will PKE use to correct the error?

LO 5

Error correction

LO 5

In 2006, the internal auditors of Development Technologies, Inc. discovered that in 2003 accrued wages of \$2 million were not recognized until they were paid in 2006 and that a \$3 million purchase of merchandise in 2006 was recorded in 2003 instead. The physical inventory count at the end of 2003 was correct, ignoring income taxes, what journal entries are needed in 2006 to correct each error? Also, briefly describe any other measures Development Technologies would take in connection with correcting the errors.

EXERCISES

An alternate exercise and problems set is available on the text website: www.mhhe.com/spike1034e

LO 1

Change in principle,
change in inventory
methods

LO 2

During 2004 (its first year of operations) and 2005, Batuli Foods used the FIFO inventory costing method. For both financial reporting and tax purposes. At the beginning of 2006, Batuli decided to change to the average method for both financial reporting and tax purposes.

Volume comparisons before income tax for 2004, 2005, and 2006 were as follows (\$ in millions):

| | 2004 | 2005 | 2006 |
|-----------------------------|-------|-------|-------|
| Revenue | \$470 | \$390 | \$380 |
| Cost of goods sold, FIFO | 40 | 100 | 110 |
| Cost of goods sold, average | 62 | 150 | 152 |
| Operating expenses | (254) | (250) | (242) |

Dividends of 5.00 cents were paid each year. Batuli's fiscal year ends December 31.

Required:

- Prepare the journal entry at the beginning of 2006 to record the change in principle. Ignore income taxes.
- Prepare the 2006-2005 comparative income statements.

E 20.2
Change in principle
change in inventory
methods

■ C02

E 20.3
Change in principle
change in the
percentage of
completion method

■ C02

1. Determine the balance in retained earnings at January 1, 2006, as Data reported previously using the FIFO method.
2. Determine the adjustment to the January 1, 2006, balance in retained earnings that Data would make in its 2006-2005 comparative statement of retained earnings or retained earnings statement if its statements of shareholders' equity to revise it to the amount it would have been if Data had used the average method.

Accounting Equipages Corporation decided to switch from the LIFO method of costing its entire inventory to the FIFO method at the beginning of 2006. In preparation for this change, the firm at 2005 ending inventory would have been \$60 million using the LIFO method and \$70 million using the FIFO method. The tax rate is 30%.

Required

1. Calculate the balance in retained earnings at the time of the change (beginning of 2006) as it would have been reported if FIFO had been used in prior years.
2. Prepare the journal entry at the beginning of 2006 to record the change in principle.

The Long Island Railroad Company has used the completed contract method of accounting for construction contracts. At the beginning of 2006, it originally decided to change to the percentage of completion method for future accounting purposes. It was unable to use the completed contract method for accounting for the 2005-2004 comparative income statements. The income tax rate for all years is 40%.

Income before Income Tax

| | Percentage of
Completion Method | Completed
Contract Method | Difference |
|-------------|------------------------------------|------------------------------|-------------|
| Before 2005 | \$15 million | \$8 million | \$7 million |
| 2005 | \$10 million | \$5 million | \$5 million |
| 2006 | \$12 million | \$9 million | \$3 million |

Required

1. Prepare the journal entry to record the change in principle. (All tax effects should be reflected in the deferred tax liability account.)
2. Determine the net income to be reported in the 2006-2005 comparative income statements which either 2005 amounts would be reported differently in the 2006-2005 comparative income statements and 2004-2005 comparative balance sheets than they were reported the previous year?
3. How would the change be reflected in the 2006-2005 comparative statements of shareholders' equity? Cash dividends were \$1 million each year.

E 20.4
Classifying accounting
changes

■ C01 through C05

Indicate with the appropriate letter the nature of the accounting change.

Type of Change

- 14C Change in principle reported retrospectively
- 14P Change in principle reported prospectively
- E Change in estimate
- 14P Change in estimate resulting from a change in principle
- E Change in accounting entry
- 14C Change in accounting change

1. Change from declining balance depreciation to straight line.
2. Change in the estimated useful life of office equipment.
3. Technological advance that results in a patent with an amortized cost of \$45,000.
4. Change from determining lower of cost or market for the inventories by the individual cost department to the aggregate after cost.
5. Change from LIFO inventory costing to the weighted-average inventory costing.
6. Settling a lawsuit for less than the amount asserted previously as a loss contingency including in the consolidated financial statements a subsidiary acquired several years earlier that was appropriately not included in previous years.
7. Change by a retail store from reporting bad debt expense on a pay-as-you-go basis to the allowance method.
8. A shift of various manufacturing overhead costs to inventory that previously were reported as incurred to those allocated to the cost of goods sold. (Either method is generally acceptable.)
9. Pension plan assets for a defined benefit pension plan achieving a rate of return in excess of the amount anticipated.

E 21-5

Change from the treasury stock method to retired stock

• Q2

In keeping with a modernization of corporate statutes in its home state, UMC Corporation decided in 2016 to discontinue accounting for reacquired shares as treasury stock (issued shares repurchased will be viewed as having been retired). Consequently, the company's unissued shares (as per the change from shares held as treasury stock to shares retired) will be recorded as common stock.

| | (\$ in millions) |
|--|------------------|
| Common shares outstanding | \$ 100 |
| Par or capital amount of 11 | 800 |
| Retained earnings | 950 |
| Treasury stock: 4 million shares at cost | 25 |
| Total shareholders' equity | \$ 37 |

Required:

Identify the type of accounting change this decision represents and prepare the journal entry to effect the reclassification of treasury shares as retired shares.

E 21-6

Change in principle change to the equity method

• Q2

The Trumpet Company, too, has ownership interests in several public corporations. At the beginning of 2016, the company's ownership interest in the common stock of Millen Properties increased to the point that it became appropriate to begin using the equity method of accounting for the investment. The balance in the investment account was \$3 million at the time of the change. Available working with company records determined that the balance would have been \$40 million if the account had been adjusted to reflect the equity method.

Required:

1. Prepare the journal entry to record the change in principle. Ignore income taxes.

2. Briefly describe other steps Trumpet should take to report the change.

3. Suppose you are changing from the equity method rather than to the equity method. How would you answer to requirements 1 and 2?

E 21-7

Change in inventory methods, incomplete information

• Q1

Minuteman has always used the LIFO inventory costing method in both financial reporting and tax purposes. At the beginning of 2016, Minuteman decides to change to the FIFO method. Net income in 2016 was \$40 million. If the company had used FIFO in 2015, its cost of goods sold would have been higher by \$6 million that year. Minuteman records its inventory purchases and sales are not available for 2015 and several previous years. Last year, Minuteman reported the following net income amounts in its comparative income statements:

| (\$ in millions) | 2015 | 2014 | 2013 |
|------------------|------|------|------|
| Net income | \$64 | \$42 | \$40 |

Required:

1. Prepare the journal entry at the beginning of 2016 to record the change in principle. Ignore income taxes.

2. Briefly describe other steps Minuteman will take to report the change.

3. What amounts will Minuteman report for net income in its 2015–2014 comparative income statements?

E 21-8

Change in inventory methods, incomplete information

• Q3

Wulfgang Kitchens has always used the FIFO inventory costing method for both financial reporting and tax purposes. At the beginning of 2016, Wulfgang decided to change to the LIFO method. Net income in 2016 was \$90 million. If the company had used LIFO in 2015, its cost of goods sold would have been higher by \$7 million that year. Company accountants are able to determine that the cumulative net income for all years prior to 2015 would have been lower by \$20 million if LIFO had been used all along, but have insufficient information to determine specific effects of using LIFO in 2014. Last year, Wulfgang reported the following net income amounts in its comparative income statements:

| (\$ in millions) | 2015 | 2014 | 2013 |
|------------------|------|------|------|
| Net income | \$94 | \$92 | \$90 |

Required:

1. Prepare the journal entry at the beginning of 2016 to record the change in principle. Ignore income taxes.

2. Briefly describe other steps Wulfgang will take to report the change.

3. What amounts will Wulfgang report for net income in its 2016–2013 comparative income statements?

E 21-9

Change in depreciation methods

• Q3

For financial reporting, Clinton Property Farms has used the declining-balance method of depreciation for conveyer equipment acquired at the beginning of 2013 for \$2,500,000. Its useful life was estimated to be six years with a \$300,000 residual value. At the beginning of 2016, Clinton decides to change to the straight-line method. The effect of this change on depreciation for each year is as follows (\$ in 1000):

| Year | Straight-Line | Declining Balance | Difference |
|------|----------------|-------------------|--------------|
| 2003 | \$ 400 | \$ 440 | \$240 |
| 2004 | 400 | 350 | 150 |
| 2005 | 400 | 400 | 60 |
| | <u>\$1,200</u> | <u>\$1,190</u> | <u>\$450</u> |

Required:

- Briefly describe the way Cardiac should report this accounting change in the 2005–2006 comparative financial statements.
- Prepare any 2006 journal entry related to the change.

E 20-10
Change in depreciation methods

• C3

The Cardiac Milling Company purchased machinery on January 2, 2004, for \$300,000. A five-year life was estimated, and no residual value was anticipated. Cardiac decided to use the straight-line depreciation method and recorded \$60,000 in depreciation in 2004 and 2005. Early in 2006, the company changed its depreciation method to the sum-of-the-years' digits (SYD) method.

Required:

- Briefly describe the way Cardiac should report this accounting change in the 2005–2006 comparative financial statements.
- Prepare any 2006 journal entry related to the change.

E 20-11
Multiple choice: CPA exam: accounting changes

• C1 through C4

The following questions dealing with accounting changes are adapted from questions that appeared on previous CPA examinations. Determine the response that best completes the statements or questions.

- When a company changes from the straight-line method of depreciation for previously reported assets to the double-declining balance method, which of the following should be reported?

Prospectively in Current and Future Statements Retrospective Application

| | | |
|---|-----|-----|
| a | No | No |
| b | No | Yes |
| c | Yes | Yes |
| d | Yes | No |

- A company has included in its consolidated financial statements one year a subsidiary acquired seven years ago that was appropriately excluded from consolidation last year. This results in:
 - An accounting change that should be reported prospectively.
 - An accounting change that should be reported by revising the financial statements of all prior periods presented.
 - A correction of an error.
 - Neither an accounting change nor a correction of an error.

E 20-12
Book royalties

• C4

Dreighton Engineering Group receives royalties on a technical manual written by one of its engineers and sold to William B. Irving Publishing, Inc. Royalties are 10% of net sales, receivable on October 1 for sales in January through June and on April 1 for sales in July through December of the prior year. Sales of the manual began in July 2005, and Dreighton accrued royalty revenue of \$1,000 at December 31, 2005, as follows:

| | |
|----------------------------|--------|
| Receivable—royalty revenue | 31,000 |
| Royalty revenue | 1,000 |

Dreighton received royalties of \$10,000 on April 1, 2006, and \$40,000 on October 1, 2006. Irving informed Dreighton on December 31 that book sales subject to royalties for the second half of 2006 are expected to be \$500,000.

Required:

- Prepare any journal entries Dreighton should record during 2006 related to the royalty revenue.
- What adjustments, if any, should be made to the financial statements for the 2006 comparative statements? Explain.

E 20-13
Loss contingency

• C4

The Citizens' Alliance of Virginia filed suit in December 2004, against Northern Timber Corporation seeking civil penalties and injunctive relief for violations of environmental laws regulating forest conservation. When the financial statements were issued in 2005, Northern had not reached a settlement with state authorities, but legal counsel advised Northern Timber that it was probable the ultimate settlement would be \$1,000,000 in penalties. The following entry was recorded:

| | |
|----------------------|-----------|
| Loss—Litigation | 1,000,000 |
| Liability—Litigation | 1,000,000 |

Later in 2006, a settlement was reached with state authorities to pay a total of \$600,000 to cover the civil penalties.

E 20-14
Warranty expense

LO4

Required:

1. Prepare any journal entries related to the change.
2. Briefly describe other steps the firm should take to report the change.

Woodruff Lawn Products introduced a new line of commercial sprinklers in 2005 that carry a one-year warranty against manufacturer's defects. Because this was the first product for which the company offered a warranty, trade publications were consulted to determine the experience of others in the industry. Based on that experience, warranty costs were expected to approximate 2% of sales. Sales of the sprinklers in 2005 were \$2,500,000. Accordingly, the following entries relating to the contingency for warranty costs were recorded during the first year of selling the product.

| Accrued liability and expense | | | |
|--|--|----------|----------|
| Warranty expense (2% of \$2,500,000) | | \$50,000 | |
| Estimated warranty liability | | | \$50,000 |
| Actual expenditures (warranty entry) | | | |
| Estimated warranty liability | | 75,000 | |
| Cash—warranty repairs parts and supplies | | | 23,000 |

In late 2006, the company's claims experience was evaluated and it was determined that claims were far more than expected—7% of sales rather than 2%.

Required:

1. Assuming sales of the sprinklers in 2006 were \$3,000,000 and warranty expenditures in 2006 reached \$88,000, prepare any journal entries related to the warranty.
2. Assuming sales of the sprinklers were discontinued after 2005, prepare any journal entry(ies) in 2006 related to the warranty.

E 20-15
Deferred taxes, change in estimate

LO4

Brown Industries reported a deferred tax liability of \$8 million for the year ended December 31, 2006, related to a temporary difference of \$20 million. The tax rate was 40%. The temporary difference is expected to reverse in 2007 at which time the deferred tax liability will become payable. There are no other temporary differences in 2006–2007. Assume a new tax law is enacted in 2006 that causes the tax rate to change from 40% to 30% beginning in 2007. (The rate remains 40% for 2008 taxes. Taxable income in 2006 is \$50 million.)

Required:

1. Determine the effect of the change and prepare the appropriate journal entry to record Brown's income tax expense in 2006. What adjustment, if any, is needed to revise retained earnings as a result of the change?

E 20-16
Accounting change

LO4

The Periodic Company purchased machinery on January 1, 2004, for \$400,000. A five-year life was estimated and an residual value was anticipated. Periodic decided to use the straight-line depreciation method and recorded \$400,000 in depreciation in 2004 and 2005. Early in 2006, the company revised the total estimated life of the machinery to eight years.

Required:

1. What type of change is this?
2. Briefly describe the accounting treatment for this change.
3. Determine depreciation for 2006.

E 20-17
Change in estimate, useful life and residual value of equipment

LO4

Wardell Company purchases a new computer on January 1, 2004, at a cost of \$40,000. The computer has been depreciated using the straight-line method over an estimated five-year useful life with an estimated residual value of \$4,000. On January 1, 2006, the estimate of useful life was changed to a total of 10 years and the estimate of residual value was changed to \$900.

Required:

1. Prepare the appropriate adjusting entry for depreciation in 2006 to reflect the revised estimate.
2. Repeat your treatment assuming that the company uses the sum-of-the-years'-digits method instead of the straight-line method.

E 20-18
Error correction inventory error

LO6

Dunn, LLC, WMC Corporation discovered that its ending inventories reported on its financial statements were overstated in the following amounts:

| 2004 | understated by | \$120,000 |
|------|----------------|-----------|
| 2005 | overstated by | 150,000 |

WMC uses the periodic inventory system and the FIFO cost method.

Required:

1. Determine the effect of these errors on retained earnings at January 1, 2006, before any adjustments. Explain your answer (upward income taxes).
2. Prepare a journal entry to correct the error.
3. What other steps would be taken in connection with the error?

E 20-19
Error: turnover
investment

• OA

E 20-20
Error: amortization
schedule

• LO6

E 20-21
Multiple choice, CPA
exam: correct

• OA

On December 12, 2006, an investment costing 400,000 was sold for 500,000. The total of the sale proceeds was credited to the investment account.

Required:

1. Prepare the journal entry to correct the error assuming it is discovered before the books are adjusted or closed in 2006 (ignore income taxes).
2. Prepare the journal entry to correct the error assuming it is not discovered until early 2007 (ignore income taxes).

Wilkins Food Products, Inc. acquired a packaging machine from Lawrence Specialties Corporation. Lawrence completed construction of the machine on January 1, 2004. In payment for the machine, Wilkins issued a three-year installment note to be paid in three equal payments at the end of each year. The payments include interest at the rate of 4%.

Lawrence made a conceptual error in preparing the amortization schedule which Wilkins failed to discover until 2006. The error had caused Wilkins to understate interest expense by \$45,000 in 2004 and \$40,000 in 2005.

Required:

1. Determine which accounts are impacted as a result of these errors at January 1, 2006, before any adjustments. Explain your answer. (Ignore income taxes.)
2. Prepare a journal entry to correct the error.
3. What other steps would be taken in connection with the error?

The following questions dealing with errors are adapted from questions that appeared on previous CPA examinations. Determine the response that best completes the statements or questions.

1. During 2006, Paul Company discovered that the ending inventories reported on its financial statements were incorrect by the following amounts:

| | | |
|------|----------|-------------|
| 2004 | \$60,000 | understated |
| 2005 | 25,000 | overstated |

Paul uses the periodic inventory system to ascertain year-end quantities that are converted to dollar amounts using the FIFO cost method. Prior to any adjustments for these errors and ignoring income taxes, Paul's retained earnings at January 1, 2006, would be:

- a. Correct
 - b. \$35,000 overstated
 - c. \$75,000 overstated
 - d. \$35,000 understated
2. Terry, Inc. is a calendar-year corporation whose financial statements for 2004 and 2005 included errors as follows:

| Year | Ending Inventory | Depreciation Expense |
|------|---------------------|----------------------|
| 2004 | \$15,000 overstated | \$12,500 overstated |
| 2005 | 5,000 understated | 4,000 understated |

Assume that purchases were recorded correctly and that no correcting entries were made at December 31, 2004 or at December 31, 2005 (ignoring income taxes). By how much should Terry's retained earnings be retrospectively adjusted at January 1, 2006?

- a. \$3,500 increase
 - b. \$3,500 decrease
 - c. \$5,000 decrease
 - d. \$5,000 increase
3. After the issuance of its 2005 financial statements Terry, Inc. discovered a computational error of \$150,000 in the calculation of its December 31, 2005, inventory. The error resulted in a \$150,000 overstatement in the cost of goods sold for the year ended December 31, 2005. In October 2006, Terry paid \$300,000 in settlement of litigation instituted against it during 2005. Ignoring income taxes, the 2006 financial statements the December 31, 2005, required earnings balance, as previously reported, should be adjusted by a:
 - a. \$300,000 credit
 - b. \$150,000 debit
 - c. \$500,000 debit
 - d. \$650,000 credit

E 20-22
Error: correction,
accrued interest on
bonds

• LO6

At the end of 2005, Mayday Furniture Company began to receive \$61,000 of interest expense that accrued during the last five months of 2005 on bonds payable. The bonds mature in 2010. The discount on the bonds is amortized by the straight-line method. The following entry was recorded on February 1, 2006, when the semiannual interest was paid:

| | | | | | | | |
|---------------------------|--|--|--|--|--|--------|--------|
| Interest payable | | | | | | 75,000 | |
| Discount on bonds payable | | | | | | | 1,200 |
| Cash | | | | | | | 72,000 |

Required:

Prepare any journal entry necessary and correct the error as well as any adjusting entry for 2006 related to the situation described. (Ignore debit balance.)

Below are three independent and unrelated errors.

- a. On December 31, 2005, Wolfe-Bach Corporation failed to accrue office supplies expense of \$1,000. In January 2006, when it received the bill from its supplier, Wolfe-Bach made the following entry:

| | | |
|-----------------|-------|-------|
| Office supplies | 1,000 | |
| Cash | | 1,000 |

- b. On the last day of 2005, Midwest Enterprises received a \$90,000 prepayment from a customer for 2006 rent on a building. Midwest recorded the receipt as rent revenue.

- c. At the end of 2005, Pinkie-Lewis Corporation failed to accrue interest of \$8,000 on a note receivable. At the beginning of 2006, when the company received the cash, it was recorded as interest revenue.

Required:

1. Journalize.

What would be the effect of each error on the income statement and the balance sheet at the end of 2005?

2. Prepare any journal entries each company should record in 2006 to correct the errors.

For each of the following inventory errors occurring in 2006, determine the effect of the error on 2006's cost of goods sold, net income, and retained earnings. Assume that the error is not discovered until 2007 and that a periodic inventory system is used. Ignore income taxes.

| | 1. Inventory | 2. Depreciation | Net effect | |
|---------|---|-----------------|--------------------|-------------------|
| | | | | |
| | | | Cost of Goods Sold | Net Income |
| | | | | Retained Earnings |
| Example | 1. Overstatement of ending inventory | | U | D |
| | 2. Understatement of purchases | | | |
| | 3. Understatement of beginning inventory | | | |
| a. | Freight-in charges are understated | | | |
| b. | Overstatement of ending inventory | | | |
| c. | Understatement of purchases | | | |
| d. | Overstatement of ending inventory | | | |
| e. | Understatement of purchases | | | |
| | understatement of ending inventory by the same amount | | | |

Indicate with the appropriate letter the nature of each adjustment described below.

Type of Adjustment

- A. Change in principle (reported retrospectively)
 B. Change in principle (accepted prospectively)
 C. Change in estimate
 D. Change in estimate resulting from a change in principle
 E. Change in reporting entity
 F. Change in accounting principle

1. Change from expensing extra line repairs to capitalizing the expenditures.
 2. Change in the residual value of machinery.
 3. Change from FIFO inventory costing to LIFO inventory costing.
 4. Change in the percentage used in estimating bad debts.
 5. Change from LIFO inventory costing to FIFO inventory costing.
 6. Change from reporting net income by the equity method due to a reduction in the percentage of shares owned.
 7. Change in the composition of a group of firms reporting as a consolidated entity.
 8. Change from accelerated depreciation to straight-line.
 9. Change from the percentage-of-completion method to the long-term construction method.
 10. Change in actuarial assumptions for a defined benefit pension plan.

1039-27

Error correction (three or one)

1039-28

1039-29

1039-30

1039-31

1039-32

1039-33

1039-34

1039-35

1039-36

1039-37

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1039-95

E 20-76

Multiple choice: CMA
earnings accounting
changes and errors

• LO4-106

The following questions dealing with accounting changes and errors are adapted from questions that previously appeared on Certified Management Accountants (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statement or questions.

In review of the May 31, 2007 financial statements during the normal year-end closing process, it was discovered that the interest income accrued on a \$100,000, 6% note receivable was omitted. Its amount(s) omitted were calculated as follows:

| | |
|--------------|----------|
| May 31, 2006 | \$ 4,800 |
| May 31, 2007 | 100,000 |

The June 30, 2007 entry to correct the error, ignoring the effect of income taxes, includes a

- credit to retained earnings for \$9,600
- credit to interest revenue for \$9,600
- debit to interest revenue for \$14,400
- credit to interest receivable for \$14,400

2. A change in the liability for warranty costs requires

- presenting prior-period financial statements as previously reported
- presenting the effect of prior-period data on income and earnings per share for all prior periods presented
- reporting no adjustments to the beginning retained earnings balance in the statement of retained earnings
- reporting current and future financial statements on the new basis

3. An example of an item that should be reported as a prior-period adjustment in a company's annual financial statements is

- a settlement resulting from litigation
- an adjustment of income taxes
- a correction of an error that occurred in a prior period
- an adjustment of utility revenue because of rate revisions ordered by a regulatory commission

PROBLEMS

Available with MyAccountingLab. See www.mhhe.com/ahle2008 for more information.

P 20-

Change in inventory
costing method;
comparative income
statements

• LO2

Excel

P 20-2

Change in principle
change in method of
accounting for long-
term construction

• LO2

An alternate exercise and problem set is available on the text website: www.mhhe.com/ahle2008

The Lead-Booker Vending Company changed its method of valuing inventory from the average cost method to the FIFO cost method at the beginning of 2006. At December 31, 2005, inventories were \$170,000 (average cost basis) and were \$124,000 a year earlier. Cecil-Booker is accountable and determined that the inventories would have totaled \$155,000 at December 31, 2005 and \$ 60,000 at December 31, 2004, if determined on a FIFO basis. A tax rate of 40% is in effect for all years.

One hundred thousand identical items were outstanding each year. Pretax income from operations was \$400,000 in 2005 and \$325,000 in 2006. There were no extraordinary items either year.

Required:

- Prepare the journal entry to record the change in principle. All tax effects should be reflected in the deferred tax liability account.
- Prepare the 2006-2005 comparative income statements beginning with income from continuing operations (include per share amounts).

The Pyramidal Construction Company has used the completed-contract method of accounting for construction contracts during its first two years of operations, 2004 and 2005. At the beginning of 2006, Pyramidal decides to change to the percentage-of-completion method for both tax and financial reporting purposes. The following table presents information concerning the change for 2004-2006. The revenue tax rate for all years is 40%.

| | Income before Income Tax | | | | |
|-------|------------------------------------|-------------------------------|------------|----------------------|-------------------------|
| | Percentage of
Completion Method | Completed-
Contract Method | Difference | Income
Tax Effect | Difference
after Tax |
| 2004 | \$ 90,000 | \$60,000 | \$30,000 | \$ 7,000 | \$ 23,000 |
| 2005 | 45,000 | 30,000 | 15,000 | 3,600 | 11,400 |
| Total | \$135,000 | \$90,000 | \$45,000 | \$10,600 | \$34,400 |
| 2006 | \$ 50,000 | \$40,000 | \$10,000 | \$ 4,000 | \$ 6,000 |

Pyramid issued 50,000 \$1 par common shares for \$220,000 when the business began, and there have been no changes in paid-in capital since then. Dividends were not paid the first year, but \$70,000 cash dividends were paid in both 2003 and 2005.

Required:

1. Prepare the journal entry to record the change in principle. (All tax effects should be reflected in the deferred tax liability account.)

2. Prepare the 2006–2005 comparative income statements beginning with income before income taxes.

3. Prepare the 2006–2005 comparative statements of shareholders' equity. (Hint: The 2004 statements reported retained earnings of \$50,000. This is $\$60,000 - \$10,000 \times 40\%$.)

Assume below the net income amounts as they should be determined by Wehrlich Steel Company by each of three different inventory costing methods (\$ in 000s).

| | FIFO | Average Cost | LIFO |
|----------|---------|--------------|---------|
| Pre-2005 | 7,870 | \$2,540 | \$2,380 |
| 2005 | 750 | 600 | 340 |
| | \$3,550 | \$3,140 | \$2,820 |

Required:

1. Assume that Wehrlich used FIFO before 2006, and then in 2006 decided to switch to average cost. Prepare the journal entry to record the change in principle and briefly describe any other steps Wehrlich should take to appropriately report the situation. (Ignore income tax effects.)

2. Assume that Wehrlich used LIFO before 2006, and then in 2006 decided to switch to LIFO cost. Wehrlich's records of inventory purchases and sales are not available for several previous years. Therefore, it is unable to determine the pre-2005 cumulative effect of applying this change to LIFO retrospectively. However, Wehrlich does have the information needed to apply LIFO on a prospective basis beginning in 2005. Prepare the journal entry to record the change in principle and briefly describe any other steps Wehrlich should take to appropriately report the situation. (Ignore income tax effects.)

3. Assume that Wehrlich uses FIFO before 2006, and then in 2006 decided to switch to LIFO. Prepare the journal entry to record the change in principle and briefly describe any other steps Wehrlich should take to appropriately report the situation. (Ignore income tax effects.)

The Rockwell Corporation uses a perpetual inventory system and has used the FIFO cost method since inception of the company in 1971. In 2006, the company decided to switch to the average cost method. Data for 2006 are as follows:

| | | |
|---|-----------|-----------|
| Beginning inventory, FIFO (5,000 units @ \$30.00) | | \$150,000 |
| Purchases: | | |
| 5,000 units @ \$36.00 | \$180,000 | |
| 5,000 units @ \$40.00 | 200,000 | 380,000 |
| Cost of goods available for sale | | \$530,000 |
| Sales for 2006 (6,000 units @ \$70.00) | | \$420,000 |

Additional information:

- The company's effective income tax rate is 40% for all years.
- If the company had used the average cost method since its 2006, ending inventory for 2005 would have been \$70,000.
- 7,000 units remained in inventory at the end of 2006.

Required:

- Prepare the journal entry at the beginning of 2006 to record the change in principle.
- In the 2006–2005 comparative financial statements, what will be the amounts of each of goods sold and inventory reported for 2006?

Company Fashion has used the LIFO method of costing inventory, but in the beginning of 2006 decided to change to the FIFO method. The inventory as reported at the end of 2005 using LIFO would have been \$20 million less than using FIFO.

Net profit margins had been reported at the end of 2004 and 2005 as \$240 million and \$260 million, respectively, reflecting the LIFO method. These amounts reflecting the FIFO method would have been \$250 million and \$272 million, respectively. 2005 net income had been reported at the end of 2005 as \$28 million using LIFO method but would have been \$31 million using FIFO. After changing to FIFO, 2006 net income was \$26 million. Dividends of \$8 million were paid each year. The tax rate is 40%.

Required:

- Prepare the journal entry at the beginning of 2006 to record the change in principle.

P 20-3
Change in inventory
costing methods
comparative income
statements

• 10 min

excel

P 20-4
Change in inventory
methods

• 10 min

P 20-5
Change in inventory
methods

• 20 min

In the 2006–2005 comparative income statements, what will be the amounts of net income reported for 2005 and 2006?

3. Prepare the 2006–2005 retained earnings statement of the comparative statements of shareholders' equity.

P 2–56

Change in principle:
change in depreciation
methods

E 1–3

During 2004 and 2005, Paulkner Manufacturing used the sum-of-the-years'-digits (SYD) method of depreciation for its operational assets, for both financial reporting and tax purposes. As the beginning of 2006, Paulkner decided to change to the straight-line method for both financial reporting and tax purposes. A rate of 40% is in effect for all years.

Paulkner does that own \$23,000 with an estimated residual value of \$3,000 and an estimated useful life of 10 years. The effect of this change in net income is as follows:

| Year | Straight-Line | SYD | Difference |
|------|---------------|---------|------------|
| 2004 | \$2,000 | \$3,700 | \$1,700 |
| 2005 | 2,000 | 2,800 | 800 |
| | \$4,000 | \$6,500 | \$2,500 |

Required

Describe the way Paulkner should account for the change described. Include in your answer any journal entry Paulkner will record in 2006 related to the change and any required footnote disclosure.

7. Suppose instead that Paulkner had previously used straight-line depreciation and changed to sum-of-the-years'-digits in 2006. Describe the way Paulkner should account for the change. Include in your answer any journal entry Paulkner will record in 2006 related to the change and any required footnote disclosures.

P 1–9

Correction: change in
estimate

E 1–14



In 2006, the Marion Company purchased land containing a mineral mine for \$1,600,000. Additional costs of \$600,000 were incurred in developing the mine. Geologists estimated that 400,000 tons of ore would be extracted. After the ore is removed, the land will have a resale value of \$100,000.

To aid in the extraction, Marion built various structures and stored storage buildings on the site at a cost of \$50,000. These structures have a useful life of 10 years. The structures cannot be removed after the ore has been removed and will be left at the site. In addition, new equipment costing \$80,000 was purchased and installed at the site. Marion does not plan to move the equipment to another site, but estimates that it can be sold at auction for \$4,000 after the mining project is completed.

In 2006, 50,000 tons of ore were estimated to be sold. In 2007, the estimate of total tons of ore in the mine was revised from 400,000 to 487,500. During 2007, 80,000 tons were extracted.

Required

- a. Compute depletion and depreciation of the mine and the mining facilities and equipment for 2006 and 2007. Marion uses the straight-line method to determine depreciation on mining facilities and equipment.

- b. Compute the book value of the mineral mine, structures, and equipment as of December 31, 2007.

P 21–18

Accounting changes,
tax situations

E 101, 103, 104

Described below are six independent and unrelated transactions involving accounting changes. Each change is assumed to be a change in principle. Any adjustments to prior periods were preferred. Assume the tax rate of the company is 40% in all years. Any tax effects should be adjusted through the deferred tax liability account.

- Merling Home Products introduced a new line of commercial awnings in 2005 that carry a one-year warranty against manufacturer's defects. Based on industry experience, warranty costs were expected to approximate 3% of sales. Sales of the awnings in 2005 were \$3,500,000. Accordingly, warranty expense and a warranty liability of \$105,000 were recorded in 2005. In late 2006, the company's experience was evaluated and it was determined that claims were far fewer than expected: 2% of sales rather than 3%. Sales of the awnings in 2006 were \$4,000,000 and warranty expenditures in 2006 totaled \$80,000.
- On December 30, 2005, Xaval Industries acquired its office building at a cost of \$1,000,000. It has been depreciated on a straight-line basis assuming a useful life of 40 years and no salvage value. However, plans were finalized in 2006 to relocate the company headquarters at the end of 2010. The current office building will have a salvage value at that time of \$200,000.
- Hobbs-Barto Merchandising, Inc. changed inventory cost methods to LIFO from FIFO at the end of 2006 for both financial statement and income tax purposes. Under FIFO, the inventory at January 30, 2007, is \$695,000.
- At the beginning of 2003, the Hoffman Group purchased office equipment at a cost of \$750,000. Its useful life was estimated to be 10 years with no salvage value. The equipment has been depreciated on a straight-line method. In 2006, the company changed to the sum-of-the-years'-digits method.
- In November 2004, the State of Minnesota issued an opinion against Huggins Manufacturing Company's penalties for violations of clean air laws. When the financial statements were formed in 2005, the state

and not booked a settlement with some uncertainties. But legal counsel advised Huggins that it was probable the company would have to pay \$200,000 in penalties. Accordingly, the following entry was recorded:

| | | |
|------------------|---------|---------|
| Debit—Buggins | 200,000 | |
| Credit—Penalties | | 200,000 |

Later in 2006, a settlement was received by its state authorities to pay a total of \$150,000 in penalties.

- F. At the beginning of 2006, Jackson Superstores, which uses the even-of-the-year depreciation method changed to the straight-line method for newly acquired buildings and equipment. The change increased current year net income by \$40,000.

Required

1. For each item in

Identify the type of change.

- Prepare any journal entry necessary as a direct result of the change as well as any adjusting entry for 2006 entries in the future years.
- Briefly describe any other steps that should be taken to appropriately report the situation.

P. 10

Accounting changes
Identify type and
reporting approach

- C01 through C04

A. At the beginning of 2006, Wagner Importers undertook a variety of changes to accounting policies. It rectified several errors and implemented new accounting policies.

Required:

On a sheet of paper separated from Part 1, indicate for each item below the type of change and the reporting approach Wagner would use.

Type of Change (choose one)

- A. Change in accounting principle
B. Change in accounting estimate
C. Change in estimate resulting from a change in principle
D. Correction of an error
E. Neither an accounting change nor an accounting error

Reporting Approach (choose one)

- A. Retrospective approach
B. Prospective approach

Change

- By acquiring additional stock, Wagner increased its investment in Wier, Inc. from a 25% interest to 25% and changed its method of accounting for the investment from an available-for-sale investment to the equity method.
- Wagner instituted a pensionership benefit plan for its employees in 2006 and adopted SFAS No. 106 "Accounting for Postretirement Benefit Plans Other than Pensions." Wagner had not previously had such a plan.
- Wagner changed its method of depreciating computer equipment from the SYD method to the straight-line method.
- Wagner determined that a liability insurance premium it both paid and expected in 2005 covered the 2006 year as well.
- Wagner purchased industrial machinery (factory equipment) on a contract basis. Wagner switched its accounting for these long-term contracts from the completed-contract method to the percentage-of-completion method.
- Due to an unexpected relocation, Wagner determined that its office building previously to be depreciated over 45 years should be depreciated over 18 years.
- Wagner offers a three-year warranty on the farming equipment it sells. Manufacturing efficiencies caused Wagner to reduce its expectations of warranty costs from 2% of sales to 1% of sales.
- Wagner changed from LIFO to FIFO in account for its materials and work in process inventories.
- Wagner changed from FIFO to average cost to account for its equipment inventory.
- Wagner sells extended service contracts on some of its equipment sold. Wagner performs services related to these contracts over several years. In 2006 Wagner changes from recognizing revenue from these service contracts as a billable work in the current year.

P. 10, 11

Inventory errors

- C06

You have been hired as the new controller for the Malone Company. Shortly after joining the company in 2006, you discover the following errors related to the 2004 and 2005 financial statements:

- Inventory at 12/31/04 was understated by \$5,000.
- Inventory at 12/31/05 was overstated by \$20,000.
- In 2005, an invoice was paid for \$20,000. The company did not record the purchase until the invoice was paid in early in 2006. At that time the purchase was recorded by debit to purchases and a credit to cash.

The company uses a periodic inventory system.

Required:

1. Assuming that the errors were discovered after the 2005 financial statements were issued, analyze the effect of the errors on 2005 and 2004 cost of goods sold, net income, and retained earnings. (Ignore income taxes.)
2. Prepare a journal entry to correct the error.
3. What other steps would be taken in connection with the error?

P 20-11

Error correction
change in depreciation
method

LO6

The Collins Corporation purchased office equipment at the beginning of 2004 and capitalized a cost of \$2,000,000. This cost included the following expenditures:

| | |
|---------------------------|--------------------|
| Purchase price | \$1,850,000 |
| Freight charges | 30,000 |
| Installation charges | 20,000 |
| Annual maintenance charge | 100,000 |
| Total | <u>\$2,000,000</u> |

The company estimated an eight-year useful life for the equipment. No residual value is anticipated. The double-declining-balance method was used to determine depreciation expenses for 2004 and 2005.

In 2006, after the 2005 financial statements were issued, the company decided to switch to the straight-line depreciation method for this equipment. At that time, the company's controller discovered that the original cost of the equipment incorrectly included one year of annual maintenance charges for the equipment.

Required:

1. Ignoring income taxes, prepare the appropriate correcting entry for the equipment capitalization error discovered in 2006.
2. Ignoring income taxes, prepare any 2006 journal entry(ies) related to the change in depreciation methods.

P 20-12

Accounting changes
and error correction;
eight situations; tax
effects ignored

LO1 through LO4

Williams-Santana, Inc., is a manufacturer of high-tech industrial parts that was started in 1994 by two talented engineers with little business training. In 2006, the company was acquired by one of its major customers. As part of an internal audit, the following facts were discovered. The audit occurred during 2006 before any adjusting entries or closing entries were prepared.

- a. A five-year casualty insurance policy was purchased at the beginning of 2004 for \$31,000. The full amount was debited to insurance expense at the time.
- b. Effective January 1, 2006, the company changed the salvage value used in calculating depreciation for its office building. The building cost \$600,000 on December 29, 1995, and has been depreciated on a straight-line basis assuming a useful life of 40 years and a salvage value of \$ 00,000. Declining real estate values in the area indicate that the salvage value will be no more than \$25,000.
- c. On December 31, 2005, merchandise inventory was overvalued by \$21,000 due to a mistake in the physical inventory count using the periodic inventory system.
- d. The company changed inventory cost methods to FIFO from LIFO at the end of 2006 for both financial statement and income tax purposes. The change will cause a \$960,000 increase in the beginning inventory at January 1, 2007.
- e. At the end of 2005, the company failed to accrue \$15,500 of sales commissions earned by employees during 2005. The expense was recorded when the commissions were paid in early 2006.
- f. At the beginning of 2006, the company purchased a machine at a cost of \$720,000. Its useful life was estimated to be 10 years with no salvage value. The machine has been depreciated by the double-declining balance method. Its carrying amount on December 31, 2005, was \$460,800. On January 1, 2006, the company changed to the straight-line method.
- g. Bad debt expense is determined each year as 3% of credit sales. Actual collection experience of recent years indicates that 0.75% is a better indication of uncollectible accounts. Management effects the change in 2006. Credit sales for 2006 are \$- 000,000; in 2005 they were \$1,100,000.
- h. Additional industrial robots were acquired at the beginning of 2003 and added to the equipment assembly process. The \$1,000,000 cost of the equipment was inadvertently recorded as repair expense. Robots have 10-year useful lives and no residual salvage value. This class of equipment is depreciated by the straight-line method.

Required:

For each situation:

1. Identify whether it represents an accounting change or an error. If an accounting change, identify the type of change.
2. Prepare any journal entry necessary as a direct result of the change or error correction as well as an adjusting entry for 2006 related to the situation described. (Ignore tax effects.)
3. Briefly describe any other steps that should be taken to appropriately report the situation.

P 20-13

Accounting changes and error correction might still come into play if factors considered

• 201 through 204 206

(Note: This problem is a variation of the previous problem, modified to consider income tax effects.)

Wellmark-Santana, Inc. is a manufacturer of high-tech industrial parts that was started in 1994 by two retired engineers with Galle business training. In 2006, the company was acquired by one of its major customers. As part of an internal audit, the following facts were discovered. The audit occurred during 2008 before any adjusting entries or financial entries were prepared. The income tax rate is 40% for all years.

- A five-year casualty insurance policy was purchased at the beginning of 2004 for \$35,000. The full amount was debited to insurance expense at the time.
- Effective January 1, 2006, the company changed the salvage values used in calculating depreciation for its office building. The building cost \$600,000 on December 29, 1995, and has been depreciated on a straight-line basis assuming a useful life of 40 years and a salvage value of \$100,000. Declining-balance values in the area indicate that the salvage value will be no more than \$25,000.
- On December 31, 2005, merchandise inventory was overstated by \$25,000 due to a mistake in the physical inventory count using the periodic inventory system.
- The company changed inventory cost methods to FIFO from LIFO at the end of 2006 for both financial statement and income tax purposes. The change will cause a \$900,000 increase in the beginning inventory at January 1, 2007.
- At the end of 2005, the company failed to accrue \$15,500 of sales commissions earned by employees during 2005. The expense was recorded when the commissions were paid in early 2006.
- At the beginning of 2004, the company purchased a machine at a cost of \$720,000. Its useful life was estimated to be ten years with no salvage value. The machine has been depreciated by the double-declining-balance method. Its carrying amount on December 31, 2005, was \$440,800. On January 1, 2006, the company changed to the straight-line method.
- Bad debt expense is determined each year as 1% of credit sales. Actual collection experience of recent years indicates that 0.75% is a better indication of uncollectible accounts. Management effects the change in 2006. Credit sales for 2006 are \$4,000,000; in 2005 they were \$3,700,000.
- Additional structural repairs were required at the beginning of 2004 and added to the company's assembly process. The \$1,000,000 cost of the equipment was inadvertently recorded as repair expense. Repairs have 10-year useful lives and no material salvage value. That class of equipment is depreciated by the straight-line method.

Required

For each situation:

- Identify whether it represents an accounting change or an error. If an accounting change, identify the type of change.
- Prepare any journal entry necessary as a direct result of the change or error correction as well as any adjusting entry for 2006 related to the situation described. Any tax effects should be adjusted for through the deferred tax liability account.
- Briefly describe any other steps that should be taken to appropriately report the situation.

Whaley Distributors is a wholesale distributor of electronic correspondence. Financial statements for the year ended December 31, 2005, reported the following amounts and subtotals (\$ in millions):

| | Assets | Liabilities | Shareholders' Equity | Net Income | Expenses |
|------|--------|-------------|----------------------|------------|----------|
| 2004 | \$740 | \$330 | \$410 | \$210 | \$150 |
| 2005 | 820 | 400 | 420 | 230 | 175 |

In 2006 the following situations occurred or came to light:

- Internal auditors discovered that ending inventories reported on the financial statements for the previous years were overstated due to faulty internal controls. The errors were in the following amounts:

| | |
|----------------|-----------------------------|
| 2004 inventory | Overstated by \$12 million |
| 2005 inventory | Understated by \$10 million |

- A liability was accrued in 2004 for a probable payment of \$7 million in connection with a lawsuit ultimately settled in December 2006 for \$4 million.
- A patent costing \$18 million at the beginning of 2004, expected to benefit operations for a total of six years, has not been amortized and acquired.
- Wiley's conveyor equipment has been depreciated by the sum-of-the-years'-digits (\$YD) basis since construction at the beginning of 2004 at a cost of \$30 million. It has an expected useful life of five years and an expected residual value. At the beginning of 2006, Wiley decided to switch to straight-line depreciation.

Required

For each situation:

P 20-14

Errors or changes in estimate; change in principle; assessment of previous financial statements

• 201 203 204 206

Excel

P 30-15
Correction of errors,
no errors

• 100%

- 1 Prepare any journal entry necessary as a direct result of the change or error correction as well as any adjusting entry for 2006 related to the situation described. (Ignore tax effects.)
- 2 Determine the amounts to be reported for each of the five items shown above from the 2004 and 2005 financial statements when those amounts are reported again in the 2006–2006 comparative financial statements.

Concord Wholesale Supply underwent a reorganization in 2006. The company conducted a thorough internal audit, during which the following facts were discovered. The audit occurred during 2006 before any adjusting entries or closing entries are prepared.

- a. Additional computers were acquired at the beginning of 2004 and added to the company's office network. The \$45,000 cost of the computers was inadvertently recorded as maintenance expense. Computers have two-year useful lives and no residual salvage value. This class of equipment is depreciated by the straight-line method.
- b. Two weeks prior to the audit, the company paid \$7,000 for assembly tools and recorded the expenditure as office supplies. The error was discovered a week later.
- c. On December 31, 2005, merchandise inventory was understated by \$78,000 due to a mistake in the physical inventory count. The company uses the periodic inventory system.
- d. Two years earlier the company received a 4% stock dividend (2,000 common shares \$1 per share) as follows:

| | | | | | | |
|-------------------|---|-----|---|---|-------|-------|
| Retained earnings | + | 100 | + | + | 2,000 | |
| Common stock | | | | | | 2,000 |

The shares had a market price at the time of \$10 per share.

- e. At the end of 2005, the company failed to accrue \$104,000 of interest expense that accrued during the last four months of 2005 on bonds payable. The bonds which were issued at face value mature in 2010. The following entry was recorded on March 1, 2006, when the semiannual interest was paid:

| | | |
|------------------|---------|---------|
| Interest expense | 156,000 | |
| Cash | | 156,000 |

- f. A three-year liability insurance policy was purchased at the beginning of 2005 for \$7,000. The full premium was debited to insurance expense at the time.

Required

For each error, prepare any journal entry needed as a result of the error as well as any year-end adjusting entry for 2006 related to the situation described. (Ignore tax effects.)

BROADEN YOUR PERSPECTIVE



Independent Case
Accounting changes,
independent situations

• On through LOS

Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Sometimes a business entry will change its method of accounting for certain items. The change may be initiated as a change of accounting principle, as a correction of an accounting estimate, or as a change in reporting entity.

Exercises will use three independent situations, each of which relates to accounting changes.

Situation I: A company determined that the depreciable lives of its fixed assets are presently too long, partly because of the rapid pace with which new assets are being acquired. The company decided at the beginning of the current year to reduce the depreciable lives of all of its existing fixed assets by five years.

Situation II: On December 31, 2005, Curry Company owned 5,000 shares of Sire Company at which time it reported its investment as a noncontrolling interest due to political uncertainties in the country in which Sire was located. In January 2, 2006, the management of Curry Company was advised that the political uncertainties were resolved and the shares of the company were no longer at risk of nationalization. Accordingly, Curry will prepare consolidated financial statements for 2006 and 2007 on the year ended December 31, 2006.

Situation III: A company decides in January 2006 to adopt the straight-line method of depreciation for all equipment. For straight-line method, will be used for new acquisitions as well as for remaining equipment. All equipment for which depreciation had been provided prior to accelerated basis.

Scenario

For each of the situations described, provide the information indicated below. Complete your discussion on each situation before going on to the next situation.

1. Type of accounting change.
2. Manner of accounting the change (does current generally accepted accounting principles involving a discontinuity, where applicable, of how amounts are computed).
3. Effect of the change on the balance sheet and income statement.
4. Possible disclosures that would be necessary.

Analysis Case 20-2
Various changes

■ LOS through LOS

UHS Corporation changed the way it depreciates its computers from the straight-line method to the double-declining method beginning January 1, 2006. UHS also changed its equated (equated) value method of computing depreciation for its office buildings. At the end of 2006, UHS changed the specific subcommittee comprising the group of companies for which its consolidated financial statements are prepared.

Required

1. For each accounting change, UHS should indicate the type of change and how UHS should report the change. Be specific.
2. Why should companies disclose changes in accounting principles?

Analysis Case 20-3
Various changes

■ LOS through LOS

Kay Solutions decided to make the following changes in its accounting policies on January 1, 2006:

- a. Changed from the cash to the accrual basis of accounting and recognizing revenue on its service contracts.
- b. Adopted straight-line depreciation for all intangible equipment purchases, but continued to use accelerated depreciation for all equipment acquired before 2006.
- c. Changed from the LIFO inventory method to the FIFO inventory method.

Required

For each accounting change Ray undertakes, indicate the type of change and how Ray should report the change. Be specific.

Integrating Case 20-4
Change to dollar-value LIFO

■ LOS

Webster Products, Inc. adopted the dollar-value LIFO method of determining inventory costs for financial and income tax reporting on January 1, 2006. Webster continues to use the FIFO method for internal decision-making purposes. Webster's FIFO inventories at December 31, 2006, 2007, and 2008, were \$245,000, \$212,500, and \$285,000, respectively. Internally generated cost indexes are used to convert FIFO inventory amounts to dollar-value LIFO amounts. Webster estimated these indexes as follows:

| | |
|------|------|
| 2006 | 1.00 |
| 2007 | 1.25 |
| 2008 | 1.50 |

Required

1. Determine Webster's dollar-value LIFO inventory at December 31, 2007 and 2008.
2. Describe how the change should have been reported in Webster's 2006 financial statements.

Integrating Case 20-5
Contingency write-down

■ LOS

In 2002, you and your fellow officers of Turbo Fabrications Corporation just returned from a meeting with officials of The City of Jackson. The meeting was unexpectedly favorable even though it culminated in a settlement with city authorities that your company pay a total of \$475,000 to cover the cost of violations of city construction codes. Jackson had filed suit in November 2004 against Turbo Fabrications Corporation, seeking civil penalties and injunctive relief for violations of city construction codes regulating earthquake damage standards. Alleged violations involved several construction projects completed during the previous three years. When the financial statements were issued in 2005, Turbo had not reached a settlement with city authorities, but legal counsel had advised the company that it was probable the ultimate settlement would be \$750,000 in penalties. The following entry had been recorded:

| | |
|----------------------|---------|
| Loss—Litigation | 750,000 |
| Liability—Litigation | 750,000 |

The final settlement decision was a pleasant surprise. While returning from the meeting, your cousin turned a reporting the settlement to the chief financial officer. You knew the same law firm was involved in writing a memo to your boss, the chairman vice president, advising the proper course of action.

Required

Write the memo. Include descriptions of any journal entries related to the change in estimate. Briefly describe other steps Turbo should take to report the settlement.

Analysis Case 20-6
Two wrongs make a right?

■ LOS

Larry and Websterday alternates. Kim and Loretta Nibbel in the dormitory room they shared at Pennsylvania College. Kim, an accounting major, was advising Larry, a management major, regarding a project for Larry's Business Policy class. One aspect of the project involved analyzing the 2005 annual report of Kraft Foods Company. Though not central to his business policy class, a footnote had caught Larry's attention:

* 20-10

to change an accounting method. The specific reporting requirements when a company changes from one generally accepted inventory method to another depend on the methods involved.

Required:

Explain the accounting treatment for a change in inventory method (a) not involving LIFO, (b) from the LIFO method, and (c) to the LIFO method. Explain the logic underlying these treatments. Also, describe how disclosure requirements are designed to address the departure from consistency and comparability of changes in reporting principle.

Real World

Case 20-10

Accounting change or method

* 20-11

On March 3, 2004, Casey's General Stores, Inc. made the following announcement:

Casey's General Stores, Inc.

Annex, Iowa, March 3, 2004—Casey's General Stores, Inc. (Nasdaq symbol: CASY) today reported earnings for the third quarter ended January 3, 2004, and for the fiscal year to date.

In the third quarter of fiscal 2004, the company changed its LIFO from FIFO for valuing base-line inventory. The historical financials presented were adjusted in accordance with GAAP to reflect LIFO valuation, and prior year third quarter earnings per share were adjusted to \$/1.65 from \$/1.64.

Required:

1. Why does GAAP require Casey's General Stores to retrospectively adjust prior years' financial statements for this type of accounting change?

2. Assuming that the quantity of inventory remained stable during the first nine months of 2003, did the cost of Casey's General Stores' inventory move up or down during that year?

range is over only
with the balance
in the

Mayfair Department Stores, Inc. operates over 30 retail stores in the Pacific Northwest. Prior to 2006, the company used the LIFO method for valuing inventory.

On June 1, 2006, the company announced that it had elected to change its inventory valuation method to FIFO. The company stated that the change was made to provide a more consistent matching of merchandise costs with sales revenue, and to provide a more comparable basis of accounting with competitors that also use the LIFO method.

- Internally developed price index is used to adjust for the effects of changing prices.
- If the change had not been made, cost of goods sold for the year would have been \$22 million lower. The company's income tax rate is 40% and there were 100 million shares of common stock outstanding during 2006.
- The cumulative effect of the change on prior years' income is not determinable.
- The reasons for the change were (a) to provide a more consistent matching of merchandise costs with sales revenue, and (b) the new method provides a more comparable basis of accounting with competitors that also use the LIFO method.

Required:

1. Prepare for Kenneth Meyer the disclosure note that will be included in the 2006 financial statements.
2. Explain why the "cumulative effect" of the change on prior years' income is not determinable.

Judgment Case 20-12
Inventory errors

Since inventory errors are said to be "self-correcting," is that the error has the opposite financial statement effect in the period following the error, thereby "correcting" the original account balance error?

Required:

Despite this self-correcting feature, discuss why these errors should not be ignored and describe the steps required to adjust for the error correction.

Ethics Case 20-13
Overstatement of
ending inventory

* 20-14

Charlie Builders is a wholesale beverage company. Dan, the vice president, uses the FIFO inventory method to determine the cost of its ending inventory. Ending inventory quantities are determined by a physical count. For the fiscal year-end June 30, 2006, ending inventory was originally determined to be \$1,265,000. However, on July 17, 2006, John Howard, the company's controller, discovered an error in the ending inventory count. He determined that the correct ending inventory amount should be \$1,200,000.

Charlie is a privately owned corporation with significant financing provided by a local bank. The bank requires annual audits of financial statements as a condition of the loan. By July 17, the auditors had completed their review of the financial statements which are scheduled to be issued on July 25. They did not discover the inventory error.

Dan's first reaction was to convince the auditors to be satisfied and to believe the financial statements before they are issued. However, he knows that he and his fellow workers' profit-sharing plans are based on annual profit earnings and that if he revises the statements, everyone's profit-sharing bonus will be significantly reduced.

Required:

1. Why will Dan's decision be negatively affected? What is the effect on pretax earnings?
2. If the error is not corrected in the current year and is discovered by the auditors during the following year's audit, how will it be reported in the company's financial statements?
3. Discuss the ethical dilemma Dan faces.

21

CHAPTER

The Statement of Cash Flows Revisited

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

- LO1 Explain the usefulness of the statement of cash flows.
- LO2 Define cash equivalents.
- LO3 Prepare the cash flows from operating activities by the direct method.
- LO4 Determine cash flows from operating activities by the indirect method.
- LO5 Identify transactions that are classified as investing activities.
- LO6 Identify transactions that are classified as financing activities.
- LO7 Identify transactions that represent noncash investing and financing activities.
- LO8 Prepare a statement of cash flows with the aid of a spreadsheet or T-accounts.

FINANCIAL REPORTING CASE



Where's the Cash?

"What do you mean you can't afford a wage increase?" union negotiator Vince Bart insisted. "We've all seen your income statement. You had record earnings this year."

This is the first day of negotiations with the company's union representatives. As company controller you know it's going to be up to you to explain the company's position on the financial aspects of the negotiations. In fact, you've known for some time that a critical point of contention would be the moderate increase in

this year's profits after three years of level or slightly declining earnings. Not helping the situation is that the company has always used accelerated depreciation on its equipment, which it began replacing this year at considerably higher prices than it cost several years back.

By the time you finish this chapter, you should be able to respond appropriately to the questions posed in this case. Compare your responses to the solution provided at the end of the chapter.

QUESTIONS

1. What are the cash flow aspects of the situation that Mr. Bart may be overlooking in making his case for a wage increase? How can a company's operations generate a healthy profit and yet produce meager or even negative cash flows? (page 1057)
2. What information can a statement of cash flows provide about a company's investing activities that can be useful in decisions such as this? (page 1059)
3. What information can a statement of cash flows provide about a company's financing activities that can be useful in decisions such as this? (page 1060)

PART A

THE CONTENT AND USE OF THE STATEMENT OF CASH FLOWS



• 101

DECISION MAKERS' PERSPECTIVE—Usefulness of Cash Flow Information

A fund manager of a major insurance company, considering investing \$8,000,000 in the common stock of The Coca-Cola Company, asks herself: "What are the prospects of future dividends and market-price appreciation? Will we get a return commensurate with the cost and risk of our investment?" A bank officer, examining an application for a business loan, asks himself: "I suppose this loan will be repaid, but how, if the borrower makes no interest payments on time and repaying the loan when due?" Investors and creditors—individuals, these and similar questions that require projections of the relative ability of a business to generate future cash flows and of the risk associated with those forecasts.

To make these projections, decision makers rely heavily on the information reported in periodic financial statements. In the final analysis, cash flows into and out of a business enterprise are the most fundamental events on which investors and creditors base their decisions. Naturally, these decisions focus on the prospects of the decision makers receiving cash returns from their dealings with the firm. However, it is the ability of the firm to generate cash flows to itself that ultimately determines the potential for cash flows from the firm to investors and creditors.

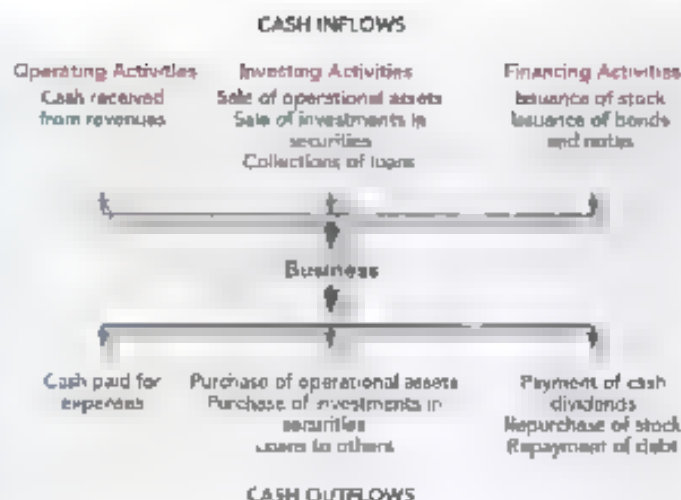
The financial statements that have been the focus of your study in earlier chapters—the income statement and the balance sheet—offer information helpful in forecasting future cash-generating ability. Some important questions, however, are not easily answered from the information these statements provide. For example, meaningful projections of a company's future profitability and risk depend on answers to such questions as:

- In what types of activities is the company investing?
- Are these activities being financed with debt, with equity, by cash generated from operations?
- Are facilities being acquired to accommodate future expansion?
- How does the amount of cash generated from operations compare with net income?
- Why can't the decrease in retained earnings be reflected as an increase in dividends?
- What happens to the cash received from the sale of assets?
- By what means is debt being repaid?

The information needed to answer these and similar questions is found in the continuing series of cash flows that the income statement and the balance sheet describe only indirectly. This underlying cash flow process is described next.

Cash Inflows and Outflows

Cash continually flows into and out of an active business. Businesses disburse cash to acquire operational assets to maintain or expand productive capacity. When no longer needed, these assets may be sold for cash. Cash is paid to produce or purchase inventory for resale, as well as to pay for the expenses of selling these goods. The ultimate outcome of these selling activities is an inflow of cash. Cash might be invested in securities of other firms. These investments provide cash inflows during the investment period in the form of dividends, interest, and at the end of the investment period, when the securities are sold. To raise cash to finance their operations, firms sell stock and/or acquire debt. Cash payments are made as dividends to shareholders and interest to creditors. When debt is repaid or stock repurchased, cash flows out of the firm. To help you visualize the continual process of cash receipts and cash payments, that process is diagrammed in Graphic 21-1. The diagram also pre-



GRAPHIC 21-1

Cash Inflows and Cash Outflows

Embedded in this parsimonious set of cash flows is a wealth of information that investors and creditors require to make educated decisions. Much of the value of the underlying information provided by the cash flows is lost when reported only indirectly by the balance sheet and the income statement. Each cash flow eventually impacts decision makers by affecting the balances of various accounts on the balance sheet. Also, many of the cash flows—those related to income-producing activities—are represented on the income statement. However, they are not necessarily reported in the period the cash flows occur because the income statement measures activities on an accrual basis. The statement of cash flows fills the information gap by reporting the cash flows directly.

Role of the Statement of Cash Flows

A statement of cash flows is shown in Graphic 21-2. The statement lists all cash inflows and cash outflows during the reporting period. To enhance the informational value of the presentation, the cash flows are classified according to the nature of the activities that bring about the cash flows. The three primary categories of cash flows are (1) cash flows from operating activities, (2) cash flows from investing activities, and (3) cash flows from financing activities. Classifying each cash flow by source (operating, investing, or financing activities) is more informative than simply listing the various cash flows. Hence, too, that the noncash investing and financing activities—investing and financing activities that do not directly increase or decrease cash—also are reported. *FASB Statement 95*, requiring the statement of cash flows, was issued in direct response to *FASB Concept Statement 1*, which states that the primary objective of financial reporting is to “provide information to help investors and creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise.”

Many companies have experienced bankruptcy because they were unable to generate sufficient cash to satisfy their obligations. Doubtless, many investors in the stock of these firms would have been spared substantial losses if the financial statements had been designed to forecast the cash flow problems the companies were experiencing. A prototypical illustration is the demise of *W. T. Grant* during the 1970s. Grant, a general retailer in the days before malls, was a blue chip stock of its time. Grant’s statement of changes in financial position, the predecessor of the statement of cash flows, reported working capital from operations of

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The statement of cash flows provides information about cash flows that is not reported on the income statement.

UNITED BRANDS CORPORATION
Statement of Cash Flows
For Year Ended December 31, 2006
(\$ in millions)

Non-cash Investing and Financial Activities

Non-cash Investing and Financial Activities

Reconciliation of Net Income to Cash Flows from Operating Activities

| | |
|---|---|
| <p> 1. <u>What is the main purpose of the document?</u>
 2. <u>What are the key findings of the study?</u>
 3. <u>What are the implications of the findings?</u>
 4. <u>What are the limitations of the study?</u>
 5. <u>What are the conclusions of the study?</u>
 6. <u>What are the recommendations for future research?</u>
 7. <u>What are the acknowledgments?</u>
 8. <u>What are the references?</u>
 9. <u>What are the appendices?</u>
 10. <u>What are the footnotes?</u> </p> | <p> 1. <u>What is the main purpose of the document?</u>
 2. <u>What are the key findings of the study?</u>
 3. <u>What are the implications of the findings?</u>
 4. <u>What are the limitations of the study?</u>
 5. <u>What are the conclusions of the study?</u>
 6. <u>What are the recommendations for future research?</u>
 7. <u>What are the acknowledgments?</u>
 8. <u>What are the references?</u>
 9. <u>What are the appendices?</u>
 10. <u>What are the footnotes?</u> </p> |
|---|---|

\$40 million in 1972. Yet, if presented, a statement of cash flows would have reported cash flows from operating activities of negative \$10 million. In fact, the unreported cash flow deficiency grew to \$14 million in 1973, while working capital from operations was reported

PRIMARY ELEMENTS OF THE STATEMENT OF CASH FLOWS

This section describes the three primary activity classifications, (1) operating activities, (2) investing activities, and (3) financing activities, and two other requirements of the statement of cash flows: (4) the reconciliation of the net increase or decrease in cash with the change in the balance of the cash account and (5) noncash investing and financing activities.

Cash Flows from Operating Activities. The income statement reports the success of a business in generating a profit from its operations. Net income of 1995 is the result of adding together the revenues earned during the operating period, regardless of when cash is received and the expense incurred. It generally ignores interest regardless of when cash is paid. This is the actual concept of accounting that has been emphasized throughout your study of accounting. Information about net income and its components, measured by the accrual concept, generally provides a better indication of current operating performance than does information about direct cash receipts and payments. Nevertheless, as mentioned earlier, the cash effects of operating activities can provide useful information, but is not directly accessible from the income statement. The first cash flow classification in the statement of cash flows provides this information.

Cash flows from operating activities are both inflows and outflows of cash that result from activities reported in the income statement. In other words, this classification of cash flows includes the elements of net income, but reported on a cash basis. The components of this section of the statement of cash flows, and their relationship with the elements of the income statement, are illustrated in Graphic 21-4.

| Income Statement | Cash Flows from Operating Activities |
|--|--|
| Revenues | Cash inflows |
| Sales and service revenues | Cash received from customers |
| Investment revenue | Cash received on sales (e.g., dividends) |
| Interest revenues and gains and gains on sale of assets | Interest |
| | Not reported |
| Less: Expenses | Less: Cash outflows |
| Cost of goods sold | Cash paid suppliers of inventory |
| Salaries and wages | Cash paid employees |
| Manufacturing expenses and losses, e.g., depreciation, amortization, bad debts, loss on sale of assets | Other reported |
| Interest on loans | Cash paid creditors |
| Income tax expense | Cash paid insurance companies and others |
| | Cash paid the government |
| Net Income | Net cash flow from operating activities |

GRAPHIC 21-4

Relationship between the Income Statement and Cash Flows from Operating Activities (Direct Method)

To see the concept applied, let's look again at the cash flows from operating activities reported by United Brands Corporation. That section of the statement of cash flows is extracted from Graphic 21-2 and reproduced in Graphic 21-5.

Cash inflows from operating activities exceeded cash outflows for expenses by \$22 million. We'll see later in Illustration 21-1 that UBC's net income from the same operating activities was only \$12 million. Why did operating activities produce net cash inflows greater than net income? The reason will become apparent when we determine, in a later section, the specific amounts of these cash flows.

You also should be aware that the generalization stated earlier that cash flows from operating activities include the elements of net income reported on a cash basis is not strictly true for all elements of the income statement. Notice in Graphic 21-5 that no cash effects are

Graphic 21-5**Cash Flows from Operating Activities**

| | |
|--|------|
| Net cash flows from operating activities | \$22 |
|--|------|

Cash Flows from Operating Activities:

| | |
|--|------|
| Cash flows: | |
| Receipts from customers | \$98 |
| Disbursements for inventory | 3 |
| Disbursements for operating expenses | (50) |
| Depreciation expense | 1 |
| Increase in accounts payable | 2 |
| Decrease in accounts receivable | 1 |
| Increase in prepaid expenses | (1) |
| Net cash flows from operating activities | \$22 |

reported for depreciation and amortization of operational assets, nor for gains and losses from the sale of those assets. Cash outflows occur when operational assets are acquired, and cash inflows occur when the assets are sold. However, as described later, the acquisition and subsequent resale of operational assets are classified as investing activities, rather than as operating activities.

Quite the opposite, the purchase and the sale of inventory are considered operating activities. The cash effects of these transactions—namely, (1) cash payments to suppliers and (2) cash receipts from customers—are included in the determination of cash flows from operating activities. Why are inventories and operational assets treated differently when classifying their cash effects if both are acquired for the purpose of producing revenues? The essential difference is that inventory typically is purchased for the purpose of being sold as part of the firm's current operations, while an operational asset is purchased as an investment to benefit the business over a relatively long period of time.

Direct Method or Indirect Method of Reporting Cash Flows from Operating Activities. The presentation by UBC of cash flows from operating activities illustrated in Graphic 21-2 and reproduced in Graphic 21-5 above is referred to as the *direct method*. The method is named for the fact that the cash effect of each operating activity (i.e., income statement item) is reported *directly* on the statement of cash flows. For instance, UBC reports "cash received from customers" as the cash effect of sales activities, "cash paid to suppliers" as the cash effect of cost of goods sold, and so on. Then, UBC simply adds from the reconciliation any income statement items that do not affect cash at all, such as depreciation expense.

Another way UBC might have reported cash flows from operating activities is by the *indirect method*. By this approach, the net cash increase or decrease from operating activities (\$22 million in our example) would be derived *indirectly* by starting with reported net income and working backwards to convert that amount to a cash basis. As we see later in the chapter, UBC's net income is \$1.2 million. Using the indirect method, UBC would replace the previous presentation of net cash flows from operating activities with the one shown in Graphic 21-6.

Be sure to note that the indirect method generates the same \$22 million net cash flows from operating activities as did the direct method. Rather than directly reporting only the components of the income statement that do represent increases or decreases in cash, by the indirect method we begin with net income—which includes both cash and noncash components—and back out all amounts that *don't* reflect increases or decreases in cash. Later in the chapter, we explore the specific adjustments made to net income to achieve this result. At this point it is sufficient to realize that two alternative methods are permitted for converting net cash flows from operating activities. Either way, we convert accrual-based income to cash flows produced by those same operating activities.

Notice also that the indirect method presentation is identical to what UBC reported earlier as the "Reconciliation of Net Income to Cash Flows from Operating Activities" in Note X of Graphic 21-2. Whether cash flows from operating activities are reported by the direct method or by the indirect method, the financial statements must reconcile the difference between net income and cash flows from operating activities. When a company uses the *direct*

At first glance, it may appear inconsistent to classify the payment of cash dividends to shareholders as a financing activity when, as stated earlier, paying interest to creditors is classified as an operating activity. But remember, cash flows from operating activities should reflect the cash effects of items that enter into the determination of net income. Interest expense is a determinant of net income. A dividend, on the other hand, is a distribution of net income and not an expense.¹⁵

Interest, unlike
dividends, is an
expense and therefore
an operating activity

Reconciliation with Change in Cash Balance. One of the first items you may have noticed about UBC's statement of cash flows is that there is a net change in cash of \$9 million. Is this a redundant item of information provided by the statement? The primary objective of the statement of cash flows is not to tell us that cash increased by \$9 million. We can readily see the increase or decrease in cash by comparing the beginning and ending balances in the cash account in comparative balance sheets. Instead, the purpose of the statement of cash flows is to explain why cash increased by \$9 million.

To reinforce the fact that the net amount of cash inflows and outflows explains the change in the cash balance, the statement of cash flows includes a reconciliation of the net increase (or decrease) in cash with the company's beginning and ending cash balances. Notice, for instance, that on UBC's statement of cash flows, the reconciliation appears as

| | |
|---------------------------|--------------|
| Net increase in cash | \$ 9 |
| Cash balance, January 1 | 20 |
| Cash balance, December 31 | <u>\$ 29</u> |

The net change in
cash is reconciled to the
beginning and ending
cash balances

Noncash Investing and Financing Activities. Suppose UBC were to borrow \$20 million cash from a bank, issuing a long-term note payable for that amount. This transaction would be reported on a statement of cash flows as a financing activity. Now suppose UBC used that \$20 million cash to purchase new equipment. This second transaction would be reported as an investing activity.

Investing is one separate transaction, as indicated by UBC's Schedule 2. Financing is another. UBC acquired \$20 million of new equipment by issuing a \$20 million long-term note payable as a single transaction. Undertaking a significant investing activity and a significant financing activity as two parts of a single transaction does not diminish the value of reporting these activities. For that reason, transactions that do not increase or decrease cash, but which result in significant investing and financing activities, must be reported in related disclosures.

These noncash investing and financing activities, such as UBC's acquiring equipment on investing activity by issuing a long-term note payable (a financing activity), are reported in a separate disclosure schedule or note. UBC reported this transaction in the following exhibit:

Noncash Investing and Financing Activities:

Acquired \$20 million of equipment by issuing a 12%, 5-year note.

It's convenient to report noncash investing and financing activities on the same page as the statement of cash flows as did UBC only if there are few such transactions. Otherwise, precisely the same information would be reported in disclosure notes to the financial statements.¹⁶

Examples of noncash transactions that would be reported in this manner are

1. Acquiring an asset by incurring a debt payable to the seller
2. Acquiring an asset by entering into a capital lease
3. Converting debt into common stock or other equity securities
4. Exchanging noncash assets or liabilities for other noncash assets or liabilities.

Noncash transactions that do not affect a company's assets or liabilities, such as the distribution of stock dividends, are not considered investing or financing activities and are not

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The transaction is
reported also

¹⁵Not all transactions are classified into the FASB's categories among operating, investing, and financing activities. See, for example,

¹⁶In January 2003, the SEC issued an Accounting Standards Update (ASU) that requires companies to report noncash investing and financing activities in the statement of cash flows.

¹⁷For example, the SEC issued an ASU in 2003 that requires companies to report noncash investing and financing activities in the statement of cash flows.

reported. Recall from Chapter 18 that stock dividends merely increase the number of shares of stock owned by existing shareholders. From an accounting standpoint, the stock dividend causes a dollar amount to be transferred from one part of shareholders' equity (retained earnings) to another part of shareholders' equity (paid-in capital). Neither assets nor liabilities are affected; therefore, no investing or financing activity has occurred.

ADDITIONAL CONSIDERATION

A transaction involving an investing and financing activity may be part cash and part noncash. For example, a company may pay cash for a part of the purchase price of new equipment and issue a long-term note for the remaining amount. In our previous illustration, LBC issued a note payable for the \$20 million cost of the equipment it acquired. Suppose the equipment were purchased in the following manner:

| | | |
|--------------|----|----|
| Equipment | 20 | |
| Cash | | 4 |
| Note payable | | 16 |

In that case, \$4 million would be reported under the caption "Cash flows from investing activities," and the noncash portion of the transaction—issuing a \$16 million note payable for \$16 million of equipment—would be reported as a "noncash investing and financing activity." LBC's statement of cash flows, if modified by the assumption of a part cash/part noncash transaction, would report these two elements of the transaction as follows:

Cash Flows from Investing Activities:

| | |
|--|-----------|
| Purchase of land | \$ (20) |
| Purchase of short-term investments | (12) |
| Sale of land | 18 |
| Sale of equipment | 5 |
| Purchase of equipment | <u>16</u> |
| Net cash flows from investing activities | 75 |

Noncash Investing and Financing Activities:

Acquired \$20 million of equipment by paying cash and issuing a 12%, 3-year note as follows:

| | |
|-------------------|--------------|
| Cost of equipment | \$20 million |
| Cash paid | 4 million |
| Note issued | \$16 million |

Preparation of the Statement of Cash Flows

- **LO2** The objective in preparing the statement of cash flows is to identify all transactions and events that represent operating, investing, or financing activities and to list and classify those activities in proper statement format. A difficulty in preparing a statement of cash flows is that typical accounting systems are not designed to produce the specific information we need for the statement. At the end of a reporting cycle, balances exist in accounts reported on the income statement (sales revenue, cost of goods sold, etc.) and the balance sheet (accounts receivable, common stock, etc.). However, the ledger contains no balances for cash paid to acquire equipment, or cash received from sale of land, or any other cash flow needed for the statement. As a result, it's necessary to find a way of using information that is available to reconstruct the various cash flows that occurred during the reporting period. Typically, the information available to assist the statement preparer includes an income statement for the year and balance sheets for both the current and preceding years (comparative statements). The accounting records also can provide additional information about transactions that caused changes in account balances during the year.

The typical year-end data is provided for LBC in Illustration 21-1. We have referred frequently to the statement of cash flows of LBC to illustrate the nature of the activities the statement reports. Now we will see how that statement is developed from the data provided in that illustration.

In situations involving relatively few transactions, it is possible to prepare the statement of cash flows by merely reporting the available data and logically determining the responsible activities. Few real-life situations are sufficient simple to be solved this way. Usually, a more analytical approach is required in analyzing the available data to ensure that all operating, investing, and financing activities are detected. A common approach is to use either a manual or electronic spreadsheet to organize and analyze the information used to prepare the statement.¹⁷

Whether the statement of cash flows is prepared by an unaided inspection and analysis of available data or if a systematic technique such as spreadsheet software is used, the analytical process is the same. In developing an analysis to be reported on a statement, we use available data to reconstruct the events and transactions that may have operating, investing, and financing activities during the year. It is helpful to reproduce the journal entries that were recorded at the time of the transactions. Evaluating reconstructed journal entries helps to ensure to visualize whether a reportable activity is involved and how that activity is to be classified.

We are assuming here that the data in the statement of cash flows is derived from the available data. This is not the case in all situations. In some cases, the data is derived from the financial statements. For example, the data in the statement of cash flows is derived from the financial statements.

UNITED BRANDS CORPORATION
Comparative Balance Sheets
December 31, 2006 and 2005
(in millions)

| Assets | 2006 | 2005 |
|--------------------------------|--------------|--------------|
| Cash | \$ 29 | \$ 20 |
| Accounts receivable | 2 | 50 |
| Short-term investments | 12 | 0 |
| Inventory | 16 | 50 |
| Prepaid insurance | 3 | 6 |
| Land | 60 | 60 |
| Buildings and equipment | 11 | 75 |
| Less: Accumulated depreciation | 161 | 201 |
| | <u>\$ 27</u> | <u>\$ 27</u> |
| Liabilities | | |
| Accounts payable | \$ 26 | \$ 20 |
| Sales tax payable | 3 | 1 |
| Income tax payable | 6 | 8 |
| Notes payable | 20 | 0 |
| Bonds payable | 5 | 50 |
| Less: Noncurrent bonds | | (3) |
| Shareholders' Equity | | |
| Common stock | 10 | 100 |
| Paid-in capital—sales of paid | 29 | 20 |
| Retained earnings | 19 | 25 |
| | <u>\$27</u> | <u>\$27</u> |

ILLUSTRATION 21-1
Comparative Balance
Sheets and Income
Statement

¹⁷The Yarcoven method is a manual systematic approach to the preparation of the statement of cash flows. This method is discussed in Appendix 21A and is equivalent to the spreadsheet method. The Yarcoven method is also used to prepare the statement of cash flows for LBC in Appendix 21A.

ILLUSTRATION 21-1
Concluded

| UNITED BRANDS CORPORATION | | | |
|--------------------------------------|-------|--|-------------|
| Income Statement | | | |
| For the Year Ended December 31, 2006 | | | |
| (\$ in millions) | | | |
| Revenues | | | |
| Sale revenue | \$100 | | |
| Investment revenue | 3 | | |
| Gain on sale of land | 8 | | \$111 |
| Expenses | | | |
| Cost of goods sold | 60 | | |
| Salaries expense | 13 | | |
| Depreciation expense | 3 | | |
| Bond interest expense | 5 | | |
| Insurance expense | 7 | | |
| Loss on sale of equipment | 2 | | |
| Income tax expense | 9 | | 99 |
| Net income | | | \$12 |

Additional Information from the Accounting Records

- A portion of company land, purchased in a previous year for \$10 million, was sold for \$18 million.
- Equipment that originally cost \$14 million, and which was one-half depreciated, was sold for \$5 million cash.
- The common shares of Mapuna Corporation were purchased for \$12 million as a short-term investment.
- Property was purchased for \$30 million cash for use as a parking lot.
- On December 31, 2006, new equipment was acquired by issuing a 12%, five-year, \$20 million note payable to the seller.
- On January 1, 2006, \$15 million of bonds were retired at maturity.
- The increase in the common stock account is attributable to the issuance of a 10% stock dividend (1 million shares) and the subsequent sale of 2 million shares of common stock. The market price of the \$10 par value common stock was \$13 per share on the dates of both transactions.
- Cash dividends of \$5 million were paid to shareholders.

Next, in Part B, we see how a spreadsheet supply ties the process of preparing a statement of cash flows. Even if you choose not to use a spreadsheet, the summary entries developed can be used to help you find the cash inflows and outflows you need to prepare a statement of cash flows. For this demonstration, we assume the direct method is used to determine and report cash flows from operating activities. Appreciation of the direct method provides the backdrop for a thorough understanding of the indirect method that we explore in Part C.

PART B

PREPARING AN SCF: THE DIRECT METHOD OF REPORTING CASH FLOWS FROM OPERATING ACTIVITIES

Using a Spreadsheet

An important advantage gained by using a spreadsheet is that it ensures that no reportable activities are inadvertently overlooked. Spreadsheet analysis relies on the fact that, in order for cash to increase or decrease, there must be a corresponding change in a noncash account. Therefore, if we can identify the events and transactions that caused the change in each non-cash account during the year, we will have identified all the operating, investing, and financing activities that are to be included in the statement of cash flows.

The change in each non-cash account is caused by an operating change.

The second major activity is a unit of activity is recorded in the spreadsheet. Then, as we enter the debits and credits to the accounts, we enter the debits and credits to the spreadsheet so that the debits and credits of the spreadsheet entries explain the changes in the accounts. In this way, the debits and credits to the accounts are explained by the debits and credits to the spreadsheet. The spreadsheet is designed in such a way that, as we record spreadsheet entries, the debits and credits to the accounts are explained by the debits and credits to the spreadsheet. The spreadsheet is designed in such a way that, as we record spreadsheet entries, the debits and credits to the accounts are explained by the debits and credits to the spreadsheet.

We begin by transferring the comparative balance sheets and income statement to a blank spreadsheet. For illustration, refer to the 2006 and 2005 balances in the completed spreadsheet for UBC, shown in Illustration 21-1A on the next two pages. Notice that the amounts for elements of the income statement are ending balances resulting from accumulations during the year. Beginning balances in each of these accounts are always zero.

For example, the cash account is the starting point for the spreadsheet for the statement of cash flows. Although at this point we have not yet identified the specific cash flow activities shown in the completed spreadsheet, we can include headings for the major categories of activities: cash flows from operating activities, cash flows from investing activities, and cash flows from financing activities. Leaving several lines between headings allows adequate space to include the specific cash flows identified in subsequent analysis.

For example, the cash account is the starting point for the spreadsheet for the statement of cash flows. Although at this point we have not yet identified the specific cash flow activities shown in the completed spreadsheet, we can include headings for the major categories of activities: cash flows from operating activities, cash flows from investing activities, and cash flows from financing activities. Leaving several lines between headings allows adequate space to include the specific cash flows identified in subsequent analysis.

To reconstruct the journal entries, we analyze each account, one at a time, deciding at each step what transaction or event caused the change in that account. Often, the reason for the change in an account is similar to a change in another account. Sometimes it is necessary to consult the accounting records for additional information to help explain the transaction that caused the change.

You may find it helpful to diagram in T-account format the relationship between accounts to better visualize certain changes, particularly in your initial study of the chapter. The analysis that follows is occasionally supplemented with such diagrams to emphasize why, rather than how, certain changes in cash flow accounts occur.

A helpful diagram is a diagram in which the relationship between accounts is a diagram to begin with the income statement accounts, followed by the balance sheet accounts. We analyze the accounts of UBC in that order below. Although our analysis of each account culminates in a spreadsheet entry, keep in mind that the analysis is described also as appropriate to identify reportable activities when a spreadsheet is not used.⁴

INCOME STATEMENT ACCOUNTS

As described in an earlier section, cash flows from operating activities are inflows and outflows of cash that result from activities reported on the income statement. Thus, to identify these cash inflows and outflows, we begin by analyzing the components of the income statement. The first account to analyze is sales revenue. The sales revenue account is a credit account that increases during the year. In fact, by referring to the beginning and ending balances in the accounts receivable account, we can determine that sales revenue is \$10 million. Since accounts receivable increased during the year, some of the sales revenue earned must not yet have been collected. This is explained further in the next section.

⁴The spreadsheet section also can be used to record the journal entries, but the T-account method is used. We refer again to these accounts in the next section.

Illustration 21-1A

| Account | 2006 | 2005 |
|--------------------------------|------|------|
| Cash | 100 | 100 |
| Accounts receivable | 100 | 100 |
| Inventory | 100 | 100 |
| Prepaid expenses | 100 | 100 |
| Property, plant, and equipment | 100 | 100 |
| Accumulated depreciation | 100 | 100 |
| Long-term debt | 100 | 100 |
| Common stock | 100 | 100 |
| Retained earnings | 100 | 100 |

Illustration 21-1B

| Account | 2006 | 2005 |
|--------------------|------|------|
| Sales revenue | 100 | 100 |
| Cost of goods sold | 100 | 100 |
| Operating expenses | 100 | 100 |
| Interest expense | 100 | 100 |
| Income tax expense | 100 | 100 |
| Dividend income | 100 | 100 |
| Interest income | 100 | 100 |
| Other income | 100 | 100 |

Illustration 21-1C

| Account | 2006 | 2005 |
|--|------|------|
| Depreciation expense | 100 | 100 |
| Amortization expense | 100 | 100 |
| Impairment expense | 100 | 100 |
| Provision for doubtful accounts | 100 | 100 |
| Provision for inventory obsolescence | 100 | 100 |
| Provision for loss on sale of assets | 100 | 100 |
| Provision for loss on disposal of assets | 100 | 100 |
| Provision for loss on disposal of assets | 100 | 100 |

Illustration 21-1D

| Account | 2006 | 2005 |
|----------------------------|------|------|
| Gain on sale of assets | 100 | 100 |
| Loss on sale of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |

Illustration 21-1E

| Account | 2006 | 2005 |
|--------------------|------|------|
| Interest income | 100 | 100 |
| Dividend income | 100 | 100 |
| Other income | 100 | 100 |
| Interest expense | 100 | 100 |
| Income tax expense | 100 | 100 |
| Dividend expense | 100 | 100 |
| Other expense | 100 | 100 |
| Interest expense | 100 | 100 |

Illustration 21-1F

| Account | 2006 | 2005 |
|--|------|------|
| Depreciation expense | 100 | 100 |
| Amortization expense | 100 | 100 |
| Impairment expense | 100 | 100 |
| Provision for doubtful accounts | 100 | 100 |
| Provision for inventory obsolescence | 100 | 100 |
| Provision for loss on sale of assets | 100 | 100 |
| Provision for loss on disposal of assets | 100 | 100 |
| Provision for loss on disposal of assets | 100 | 100 |

Illustration 21-1G

| Account | 2006 | 2005 |
|----------------------------|------|------|
| Gain on sale of assets | 100 | 100 |
| Loss on sale of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |
| Gain on disposal of assets | 100 | 100 |
| Loss on disposal of assets | 100 | 100 |

Illustration 21-1H

| Account | 2006 | 2005 |
|--------------------|------|------|
| Interest income | 100 | 100 |
| Dividend income | 100 | 100 |
| Other income | 100 | 100 |
| Interest expense | 100 | 100 |
| Income tax expense | 100 | 100 |
| Dividend expense | 100 | 100 |
| Other expense | 100 | 100 |
| Interest expense | 100 | 100 |

Illustration 21-1A
Spreadsheet

| UNITED BRANDS CORPORATION | | | | | |
|---|----------------|--------|-----------|---------|----------------|
| Spreadsheet for the Statement of Cash Flows | | | | | |
| | Changes | | | | |
| | Dec 31
2005 | Debits | | Credits | |
| | | | | | Dec 31
2006 |
| Balance Sheet | | | | | |
| Assets: | | | | | |
| Cash | 20 | 19 | 9 | | 29 |
| Accounts receivable | 10 | | | | 17 |
| Short-term investments | 0 | 2 | 12 | | 12 |
| Inventory | 10 | | | (4) | 4 |
| Prepaid insurance and | 6 | | | (8) | 3 |
| Land | 60 | 3 | 30 | 3 | 60 |
| Buildings and equipment | 75 | 4 | 20 | 9 | 8 |
| Less: Accumulated depreciation | (20) | (7) | 7 | 5 | 6 |
| | 221 | | | | 267 |
| Liabilities: | | | | | |
| Accounts payable | 20 | | | 4 | 6 |
| Salaries payable | 1 | | | 5 | 2 |
| Income tax payable | 8 | 0 | 2 | | 6 |
| Notes payable | 0 | | | 4 | 20 |
| Bonds payable | 50 | 15 | 15 | | 15 |
| Less: Discount on bonds | (3) | | | 7 | 2 |
| Shareholders' Equity: | | | | | |
| Common stock | 100 | | | 16 | 1 |
| Preferred stock, noncumulative, 5% | 20 | | | 17 | 20 |
| Retained earnings | 25 | 6 | 17 | 7 | 6 |
| | 221 | 19 | 5 | 1 | 2 |
| | | | | | 267 |
| Income Statement | | | | | |
| Revenues: | | | | | |
| Sales revenue | | | | | 100 |
| Licensing revenue | | | | 2 | 3 |
| Gain on sale of land | | | | 3 | 8 |
| Expenses: | | | | | |
| Cost of goods sold | | 4 | 60 | | (60) |
| Salaries expense | | 5 | 3 | | (13) |
| Depreciation expense | | 6 | 3 | | (9) |
| Interest expense | | 7 | 5 | | (12) |
| Insurance expense | | 8 | 7 | | (15) |
| Loss on sale of equipment | | 9 | 2 | | (11) |
| Income tax expense | | 0 | 9 | | (9) |
| Net income | | | 12 | | 12 |
| Statement of Cash Flows | | | | | |
| Operating Activities: | | | | | |
| Cash inflows: | | | | | |
| From customers | | | 20 | | |
| From investment revenue | | 2 | 3 | | |
| Cash outflows: | | | | | |
| To suppliers of goods | | | | (4) | 50 |
| To employees | | | | 4 | 11 |
| To landlords | | | | 7 | 3 |
| For insurance expense | | | | 18 | 4 |
| For income taxes | | | | (10) | 1 |
| Net cash flows | | | | | 22 |

| | Changes | | Illustration 21-1A
Concluded | |
|-----------------------------|-----------------|--------|---------------------------------|-----------------|
| | Dec. 31
2005 | Debits | Credits | Dec. 31
2006 |
| Investing Activities | | | | |
| Sale of land | | \$1 | | |
| Sale of equipment | | 19 | | |
| Disposal of investment | | | 21 | |
| Purchase of land | | | 30 | |
| Net cash flows | | | | 19 |
| Financing Activities | | | | |
| Retirement of bonds payable | | | 5 | 15 |
| Issuance of common shares | 17 | 20 | | |
| Payment of cash dividends | | | 6 | 5 |
| Net cash flows | | | | 6 |
| Total increase in cash | | | 19 | 9 |
| Cash | | 76 | 776 | |

A—As explained later, the X's serve as a reminder to report this nonzero amount.

The cash effects of other income statement elements can be similarly discerned by referring to changes in the balances of the balance sheet accounts that are directly related to those elements. So, to identify cash flows from operating activities we examine, one at a time, the elements of the income statement in conjunction with their related balance sheet accounts affected by each element.

1. Sales Revenue. Accounts receivable is the balance sheet account that is affected by sales revenue. Specifically, accounts receivable is increased by credit sales and is decreased as cash is received from customers. We can compare sales and the change to accounts receivable during the year to determine the amount of cash received from customers. This relationship can be viewed in T-account format as follows:

| Accounts Receivable | |
|---------------------|-----|
| Beginning balance | 30 |
| Credit sales | 100 |
| (increases A/R) | |
| Ending balance | 32 |

We see from this analysis that cash received from customers must have been \$98 million. Note that even if some of the year's sales were cash sales, say \$40 million cash sales and \$60 million credit sales, the result is the same:

| Accounts Receivable | |
|---------------------|----|
| Beginning balance | 30 |
| Cash sales | 60 |
| Credit sales | 58 |
| Ending balance | 32 |

| | |
|---------------------|------|
| Cash sales | \$40 |
| Received on account | 58 |
| Cash received | \$98 |

Thus, cash flows from operating activities should include cash received from customers of \$98 million. The net effect of sales revenue activity during the year can be summarized in the following entry:

| | |
|---|------------------|
| Entry (1) Cash received from customers | 15 (in millions) |
| Accounts receivable (100 - 7) | 2 |
| Sales revenue (\$100 - 7) | 93 |

| | |
|---------------------|----|
| Cash | 15 |
| Accounts receivable | 2 |
| Sales revenue | 93 |

The entry above appears as entry (1) in the completed spreadsheet for JBC, shown in Illustration 21-1A. The entry explains the changes in two account balances—accounts receivable and sales revenue. Since the entry affects cash, it also identifies a cash flow to be reported on the statement of cash flows. The \$98 million debit to cash is therefore entered in the statement of cash flows section of the spreadsheet under the heading of cash flows from operating activities.

ADDITIONAL CONSIDERATION

The preceding discussion describes the most common situation—companies earn revenue by selling goods and services, increase accounts receivable, and then collect the cash and decrease accounts receivable. For some companies, though, often collect the cash in advance of earning it, record unearned revenue, and then later record revenue and decrease unearned revenue. In these cases, we need to analyze any changes in the unearned revenue account for differences between revenue reported and cash collected. For instance, if JBC also had a \$1 million increase in unearned revenue, the summary entry would be modified as follows:

| | \$ in millions |
|---------------------------------------|----------------|
| Entry (1) Cash increased (debit) \$98 | 98 |
| Accounts receivable (decreased) 2 | 2 |
| Unearned revenue (increased) 1 | 1 |
| Sales revenue (decreased) 0 | 0 |

Notice that we enter the cash portion of our (1) as one of several cash flows on the statement of cash flows rather than as a debit to the cash account. Only after all cash inflows and outflows have been identified will the net change to cash be entered as a debit to the cash account. In fact, the entry to reconcile the \$9 million increase in the cash account and the \$9 million net increase in cash on the statement of cash flows will serve as a final check of the accuracy of our spreadsheet analysis.

ADDITIONAL CONSIDERATION

Notice that bad debt expense does not appear on the income statement and allowance for uncollectible accounts does not appear on the balance sheet. We have assumed that bad debts are immaterial for JBC. When this is not the case, it is necessary to consider the write-off of bad debts as we determine cash received from customers. Here's why.

When using the allowance method to account for bad debts, a company estimates the dollar amount of customer accounts that will ultimately prove uncollectible and records both bad debt expense and allowance for uncollectible accounts for that estimate.

| | | |
|--|-----|-----|
| Bad debt expense | 200 | 0 |
| Allowance for uncollectible accounts | | 200 |
| Then, when accounts actually prove uncollectible, accounts receivable and the allowance are reduced: | | |
| Allowance for uncollectible accounts | 200 | 0 |
| Accounts receivable | | 200 |

In our illustration, we concluded that JBC received \$2 million less cash (\$98 million from sales) for the year (\$100 million increase accounts receivable increased by that amount). However, if a portion of the change in accounts receivable had been due to write-offs of bad debts, that conclusion would be incorrect. Let's say, for instance, that JBC had bad debt expense of \$2 million and its allowance for uncollectible accounts had increased by \$1 million. Because the allowance for uncollectible accounts would be credited by \$2 million in the adjusting entry for bad debts expense, necessarily more

also would have been a \$1 million debit to the accounts receivable (or there to have been a net increase (credit) in its balance of only \$1 million. That debit would occur due to write-offs of bad debts totalling \$1 million.

| | |
|--------------------------------------|-------------|
| Allowance for uncollectible accounts | \$1 million |
| " " | |

This would indicate that a portion of the total change in accounts receivable (\$2 million debit) would have been due to write-offs of bad debts, and the remaining change (\$3 million debit) would have been due to cash collections being less than sales revenue. Cash received from customers would have been only \$97 million in that case. We can view this in the framework of our T-account analysis as follows:

| Accounts Receivable | |
|---------------------|-----|
| Beginning balance | 31 |
| Credit Sales | 97 |
| | 128 |
| Ending balance | 32 |

The effect of write-offs of bad debts can be explicitly considered by combining all the accounts related to sales and collection activities into a single summary spreadsheet entry.

| Entry (1) Cash received from customers | | \$ in millions |
|--|--|----------------|
| Dr. accounts receivable (\$31 - 30) | | 1 |
| Bad debt expense from income statement | | 2 |
| Allowance for uncollectible accounts (\$1 - 2) | | 1 |
| Sales revenue (\$100 - 0) | | 100 |

This single entry summarizes all transactions related to sales, bad debts expense, write-offs of accounts receivable, and cash collections from sales.

The remaining spreadsheet entries are described in subsections 2 through 19. When including the entries on the spreadsheet, it is helpful to number the entries sequentially to provide a means of retracing the steps taken in the analysis if the need arises. You also may find it helpful to put a check mark (✓) to the right of the ending balance when the change to that balance has been explained. Then, once you have check marks next to every noncash account, you will know you are finished.

2. Investment Revenue. The income statement reports investment revenue of \$3 million. Before concluding that this amount was received in cash, we first refer to the balance sheets to see whether a change in an account there indicates otherwise. A change in either of two balance sheet accounts, (a) investment revenue receivable or (b) long-term investments, might indicate that cash received from investments differs from the amount reported in the income statement.

- If we observe either an increase or a decrease in an *investment revenue receivable* account (e.g., interest receivable, dividends receivable), we would conclude that the amount of cash received during the year was less than (if an increase) or more than (if a decrease) the amount of revenue reported. The analysis would be identical to that of sales revenue and accounts receivable.
- Also, an unexplained increase in a *long-term investment* account might indicate that a portion of investment revenue has not yet been received in cash. Recall from Chapter 12 that when using the equity method to account for investments in the stock of another corporation, investment revenue is recognized as the investor's percentage share of the investee's income, whether or not the revenue is received.

| | |
|--------------------------------|---|
| Investment revenue | 3 |
| Investment revenue receivable | 1 |
| Long-term investments | 1 |
| Cash received from investments | 1 |

From cash received from the investment

currently as cash dividends. For example, assume the investor owns 25% of the common stock of a corporation that reports net income of \$12 million and pays dividends of \$4 million. This situation would have produced a \$2 million increase in long-term investments, which can be demonstrated by reconstructing the journal entries for the recognition of investment and the receipt of cash dividends.

| | (\$ in millions) |
|--------------------------------|------------------|
| Long-term investments | 1 |
| Investment revenue (\$4 × 25%) | 1 |
| Cash (\$4 × 75%) | 3 |
| LONG-TERM INVESTMENTS | |

A combined entry would produce the same results:

| | 2 |
|--------------------------------|---|
| Long-term investments | 1 |
| Cash (\$4 × 75%) | 3 |
| Investment revenue (\$4 × 25%) | 1 |

The \$2 million net increase in long-term investments would represent the investment revenue not received in cash. This would also explain why there is a \$3 million increase (credit) in investment revenue. If these events had occurred, we would prepare a spreadsheet entry identical to the combined entry above. The spreadsheet entry would (a) explain the \$2 million increase in long-term investments, (b) explain the \$3 million increase in investment revenue, and (c) identify a \$1 million cash inflow from operating activities.

However, because neither an investment revenue receivable account nor a long-term investment account appears on the comparative balance sheets, we can conclude that \$3 million of investment revenue was collected in cash. Entry (2) on the spreadsheet is

| | 5 | (\$ in millions) |
|---|---|------------------|
| Entry (2) Cash received from investment revenue | 3 | |
| Investment revenue (\$3 × 25%) | | 3 |

3. Gain on Sale of Land. The third item reported on the income statement is an \$8 million gain on the sale of land. Recall that our objective in analyzing each element of the statement is to determine the cash effect of that element. To do so, we need additional information about the transaction that caused this gain. The accounting records—item (a) in Illustration 21-1—indicate that land that originally cost \$10 million was sold for \$18 million. The entry recorded in the journal when the land was sold also serves as our spreadsheet entry.

| | 18 | (\$ in millions) |
|--|----|------------------|
| Entry (3) Cash received from sale of land and gain | 10 | |
| Gain on sale of land (\$8 million) | | 8 |

The cash effect of this transaction is a cash increase of \$18 million. We therefore include the debit as a cash inflow in the statement of cash flows section of the spreadsheet. However, unlike the cash effect of the previous two spreadsheet entries, it is not reported as an operating activity. The sale of land is an *investing* activity, so this cash inflow is listed under the heading of the spreadsheet. The entry also accounts for the \$8 million gain on sale of land. The \$10 million credit to land does not, by itself, explain the \$20 million increase in that account. As we will later discover, another transaction also affected the land account.

It is important to understand that the gain is simply the difference between cash received in the sale of land (reported as an investing activity) and the book value of the land. To report the \$8 million gain as a cash flow from operating activities, in addition to reporting \$18 million as a cash flow from investing activities, would be to report the \$8 million twice.

Since the other two entries appear to be apparent that would have caused a change in investment revenue, we can conclude that \$3 million of investment revenue was collected in cash.

A gain (or loss) is simply the difference between the cash received in the sale of land and the book value of the land.

4. Cost of Goods Sold. During the year, ABC sold goods that had cost \$60 million. This does not necessarily indicate that \$60 million cash was paid to suppliers of these goods. To determine the amount of cash paid to suppliers, we look at the two current accounts affected by merchandise purchases—inventory and accounts payable. The analysis can be viewed as a two-step process:

First, we compare cost of goods sold with the change in inventory to determine the cost of goods purchased (not necessarily cash paid) during the year. To facilitate our analysis, we can examine the relationship in T-account format:

| | Inventory | |
|--|-----------|---|
| Beginning balance | 50 | |
| Cost of goods purchased
(increases inventory) | 2 60 | Cost of goods sold
(decreases inventory) |
| Ending balance | 46 | |

From this analysis, we see that \$56 million of goods were purchased during the year. It is not necessarily true, though, that \$56 million cash was paid to suppliers of these goods. By looking in accounts payable, we can determine the cash paid to suppliers:

| | Accounts Payable | |
|---|------------------|--|
| | 20 | Beginning balance |
| Cash paid to suppliers
(decreases A/P) | 7 56 | Cost of goods purchased
(increases A/P) |
| | 26 | Ending balance |

We now see that cash paid to suppliers was \$50 million. The spreadsheet entry that summarizes merchandise acquisitions is:

| | | \$ in millions | |
|--|--|----------------|--|
| Entry (4) Cost of goods sold (\$60) | | 60 | |
| Inventory (\$46) \downarrow | | 4 | |
| Accounts payable (\$26) \uparrow | | 6 | |
| Cash paid to suppliers of goods \downarrow | | 50 | |

Determining the amount of cash paid to suppliers requires that we subtract the cost of goods sold from the cost of goods purchased, but also that we add both inventory and accounts payable to the beginning balance.

5. Salaries Expense. The balance sheet account affected by salaries expense is salaries payable. By analyzing salaries expense in relation to the change in salaries payable, we can determine the amount of cash paid to employees:

| | Salaries Payable | |
|--|------------------|--|
| | 1 | Beginning balance |
| Cash paid to employees
(decreases salaries payable) | 7 13 | Salaries expense
(increases salaries payable) |
| | 3 | Ending balance |

This analysis indicates that only \$1 million cash was paid to employees, the remaining \$2 million of salaries expense is reflected as an increase in salaries payable.

Viewing the relationship in journal entry format provides the same conclusion and also gives us the entry in our spreadsheet analysis:

| | | \$ in millions | |
|---|--|----------------|--|
| Entry (5) Salaries expense (\$13) \uparrow | | 13 | |
| Salaries payable (\$3) \uparrow | | 3 | |
| Cash paid to employees \downarrow | | 10 | |

Accounting for salaries expense requires that we subtract the ending balance from the beginning balance, but also that we add the ending balance to the beginning balance.

6. Depreciation Expense. The income statement reports depreciation expense of \$5 million. The entry used to record depreciation, which also serves as the spreadsheet entry, is:

Depreciation expense is not the same as the amount of cash paid to bondholders when bonds are issued at either a premium or a discount.

Entry (6) Depreciation expense (\$3 million)
Accumulated depreciation

(\$3 million)
3

Depreciation is a noncash expense. It is merely an allocation to the current period of a prior cash expenditure (for the depreciable asset). Therefore, unlike the other entries to the books, the depreciation entry has no effect on the statement of cash flows. However, it does explain the change in the depreciation expense account and a portion of the change in accumulated depreciation.

7. Interest Expense. Recall from Chapter 4 that bond interest expense differs from the amount of cash paid to bondholders when bonds are issued at either a premium or a discount. The difference between the two amounts is the reduction of the premium or discount. By referring to the balance sheet, we see that UBC's bonds were issued at a discount. Since we know that bond interest expense is \$5 million and that \$2 million of the discount was reduced in 2006, we can determine that \$3 million in cash was paid to bondholders by reworking the entry that summarizes the recording of bond interest expense.

From the balance sheet, we know that the amount of cash paid to bondholders when bonds are issued at either a premium or a discount is not the same as the amount of cash paid to bondholders when bonds are issued at either a premium or a discount.

Entry (7) Bond interest expense (\$5 million)
Discount on bonds payable (\$2 million)
Cash (paid to bondholders)

(\$5 million)
5

Recording this entry on the spreadsheet explains the change in both the bond interest expense and discount on bonds payable accounts. It also provides us with another cash outflow from operating activities. Of course, if a premium were being reduced, rather than a discount, the cash outflow would be greater than the expense.

ADDITIONAL CONSIDERATION

If the balance sheet had revealed an increase or decrease in an accrued bond interest payable account, the entry calculating cash paid to bondholders would require modification. For example, if UBC had a bond interest payable account and that account had increased (a credit) by \$1 million, the entry would have been:

Entry (7) Bond interest expense
(revised) Discount on bonds payable
Bond interest payable
Cash (paid to bondholders)

(\$5 million)
5

If the amount owed to bondholders increased by \$1 million, they obviously were paid \$1 million less cash than if there had been no change in the amount owed them. Similarly, if bond interest payable decreased by \$1 million, the opposite would be true; that is, cash paid to them would have been \$1 million more.

8. Insurance Expense. A decrease of \$3 million in the prepaid insurance account indicates that cash paid for insurance coverage was \$3 million less than the \$7 million insurance expense for the year. Viewing prepaid insurance in T-account format clarifies this point.

| Prepaid Insurance | |
|-----------------------------|---|
| Beginning balance | 6 |
| Cash paid for insurance | 7 |
| Increases prepaid insurance | 7 |
| Ending balance | 3 |

From this analysis, we can conclude that \$4 million was paid for insurance. We reach the same conclusion by preparing the following spreadsheet entry:

| | (\$ in millions) |
|---|------------------|
| Entry (8) Insurance expense \$7 01 | |
| Prepaid insurance \$5 01 | |
| Cash paid for insurance 4 | |

\$7 = \$5 million in prepaid insurance plus \$2 million in cash paid for insurance expense. The \$4 million cash expense was paid in cash during the period.

The entry accounts for the change in both the insurance expense and prepaid insurance accounts and also identifies a cash outflow from operating activities.

9. Loss on Sale of Equipment. A \$2 million loss on sale of equipment is the next item reported on the income statement. To determine the cash effect of the sale of equipment, we need additional information about the transaction. The information we need is provided in section 9 of Illustration 21. Here again, the journal entry for the transaction described gives us the following entry:

| | (\$ in millions) |
|--|------------------|
| Entry (9) Cash from the sale of equipment 5 | |
| Loss on sale of equipment \$2 75 | |
| Accumulated depreciation \$4 50 | |
| Buildings and equipment 10 00 | |

The \$5 million cash inflow from the sale of equipment is offset by a \$2 million loss on sale of equipment and a \$3 million decrease in accumulated depreciation.

The \$5 million cash inflow is entered in the statement of cash flows section of the spreadsheet as an investing activity. The \$2 million debit to the loss on sale of equipment explains the change in that account balance. Referring to the spreadsheet, we see that a portion of the change in accumulated depreciation was accounted for in entry (6). The debit to accumulated depreciation in the entry above completes the explanation for the change in that account. However, the credit to buildings and equipment only partially justifies the change in that account. We must assume that the analysis of a subsequent transaction will account for the unexplained portion of the change.

Recognize too that the loss, like the gain in entry (3), has no cash effect in the current period. Therefore, it is not reported on the statement of cash flows.

10. Income Tax Expense. The final expense reported on the income statement is income tax expense. Since income taxes payable is the balance sheet account affected by this expense, we look to the change in that account to help determine the cash paid for income taxes. A T-account analysis can be used to find the cash effect as follows:

| | Income Tax Payable | |
|---|--------------------|--------------------|
| | 8 | Beginning balance |
| Cash paid for income tax
decreases the liability | 9 | Income tax expense |
| | 1 | Ending balance |

The analysis reveals that \$1 cash was paid for income taxes \$7 in less than the year's expense. The overpayment explains why the liability for income taxes decreased by \$2 million.

The same conclusion can be reached from the following spreadsheet entry, which represents the net effect of income taxes on ABC's accounts:

| | (\$ in millions) |
|---|------------------|
| Entry (10) Income tax expense \$9 01 | |
| Income tax payable \$6 80 | |
| Cash (paid for income taxes) | |

ADDITIONAL CONSIDERATIONS

Entry 10) would require modification in either of the two independent situations described below.

1. Note that JBC does not have a deferred income tax account. Recall from Chapter 14 that temporary differences between taxable income and pretax accounting income give rise to deferred taxes. If temporary differences had been present, which would be evidenced by a change in a deferred income taxes account, the calculation of cash paid for income taxes would require modification. Assume, for example, that a deferred income tax liability account had experienced a credit change of \$1 million for the year in that case the previous spreadsheet entry would be revised as follows:

| | | | (\$ in millions) |
|------------|-------------------------------|---|------------------|
| Entry (10) | income tax expense | | 9 |
| Revised: | income tax payable | | 9 |
| | deferred income tax liability | + | 1 |
| | cash paid for income taxes | + | 10 |

As the revised entry indicates, only \$10 million cash would have been paid in this situation, rather than \$11 million. The \$1 million difference represents the portion of the income tax expense whose payment is deferred to a later year.

2. The spreadsheet entry also would be affected if the income statement includes either an extraordinary gain or an extraordinary loss. Recall from Chapter 3 and Chapter 14 that the income tax effect of an extraordinary item is not reflected in income tax expense, but instead is separately reported as a reduction in the extraordinary item. For example, if JBC's loss on the sale of equipment had been due to an extraordinary event, the tax savings from that loss would be reported as a reduction in the extraordinary loss rather than as a reduction in income tax expense. (Since the loss reduces taxable income by \$2 million, assuming a marginal tax rate of 50%, taxes would be reduced by \$1 million.) The lower portion of the income statement would have appeared as shown below, in comparison with the presentation in Illustration 21-1:

| Ordinary Loss | | Extraordinary Loss | |
|---------------------------|------|-----------------------------------|--------|
| (from Illustration 21-1) | | | |
| | | income tax expense | (\$10) |
| | | income before extraordinary items | \$13 |
| Loss on sale of equipment | (2) | E.O. loss—sale of equipment | \$2 |
| income tax expense | (9) | Less: Tax savings | (1) |
| Net income | \$12 | Net income | \$12 |

Without the tax savings produced by the loss, income tax expense would have been \$10 million, rather than \$9 million. But the tax savings still reduces the amount of cash paid for income taxes, even though it is reported separately from the income tax expense. Therefore, whether the loss is extraordinary or not, the amount of cash paid for income taxes is the same. If the loss is extraordinary, entry (10) would be modified as follows:

| | | | (\$ in millions) |
|------------|---|--|------------------|
| Entry (10) | income tax expense (on ordinary income) | | 10 |
| Revised: | income tax payable | | 2 |
| | income tax expense | | |
| | extraordinary loss | | |
| | cash paid for income taxes | | 1 |

Entry (9) would be unaffected. Whether or not the loss is extraordinary, it is not reported on the statement of cash flows, and the cash inflow from the sale is reported as an investing activity.

11 Net Income. The balance in the retained earnings account at the end of the year is greater as a result of net income. To take into account for all changes in each of the accounts, we must include the following spreadsheet entry, which represents the closing of net income to retained earnings:

| | | (\$ in millions) |
|-----------------------------|---|------------------|
| Entry 11) Net income | | |
| Retained earnings | 2 | |

This entry partially explains the change in the retained earnings account.

This entry does not affect amounts reported on the statement of cash flows. We include the entry in the spreadsheet analysis only to help explain account balance changes.

BALANCE SHEET ACCOUNTS

To identify all the operating, investing, and financing activities when using a spreadsheet, we must account for the changes in each account on both the income statement and the balance sheet. Thus, we have to explain the change in each account on the income statement. Since the changes that gave rise to some of these changes in the balance sheet accounts as well as some changes in balance sheet accounts have already been explained, we now reconstruct the remaining changes in the remaining items.

With the exception of the cash account, the accounts are analyzed in the order of their presentation in the balance sheet. As noted earlier, we have the entry that reconciles the change in the cash account with the net change in cash from the statement of cash flows as a final check on the accuracy of the spreadsheet.

12 Short-Term Investments. Since the change in accounts receivable was explained previously (in entry 1), we proceed to the next asset on the balance sheet. The balance in short-term investments increased from zero to \$ 2 million in the absence of evidence to the contrary, we could assume that the increase is due to the purchase of short-term investments during the year. This assumption is confirmed by Item c) of Question 21-1.

The entry to record the investment and our spreadsheet entry is

| | | (\$ in millions) |
|--|---|------------------|
| Entry 12) Short-term investments increase | | |
| Cash purchase of short-term investments | 2 | |

The \$ 2 million increase in the short-term investments account is due to the purchase of short-term investments during the year.

The \$12 million cash outflow is entered in the statement of cash flows section of the spreadsheet as an investing activity.

ADDITIONAL CONSIDERATION

Recall that some highly liquid short-term investments, such as Treasury bills or commercial paper, might be classified as cash equivalents. If these investments were classified as cash equivalents, their purchase would have no effect on the total of cash and cash equivalents. In other words, since cash would increase and a debit to cash equivalents would constitute a credit to cash, the purchase of short-term investments during the year would not affect the total of cash and cash equivalents and would not be reported.

An exception would be if the cash equivalents were sold or otherwise disposed of during the year. For example, assume a cash equivalent were sold for \$3 million more than its \$2 million cost. The sale would constitute both a \$3 million increase and a \$2 million decrease in cash. We see the effect more clearly if we reconstruct the transaction in journal entry format:

such as money market funds, which are cash equivalents. If these short-term investments were purchased, the purchase would have no effect on the total of cash and cash equivalents. In other words, since cash would increase and a debit to cash equivalents would constitute a credit to cash, the purchase of short-term investments during the year would not affect the total of cash and cash equivalents and would not be reported.

An exception would be if the cash equivalents were sold or otherwise disposed of during the year. For example, assume a cash equivalent were sold for \$3 million more than its \$2 million cost. The sale would constitute both a \$3 million increase and a \$2 million decrease in cash. We see the effect more clearly if we reconstruct the transaction in journal entry format:

| | |
|----------------------------------|---|
| Cash: | |
| Gain on sale of cash equivalents | 1 |
| Cash for municipal investments | 1 |

The spreadsheet entry to reflect the net increase in cash would be

| | |
|--|---|
| Entry 20: Cash from sale of cash equivalents | |
| Gain on sale of cash equivalents | 1 |

The \$1 million net increase in cash and cash equivalents would be reported as a cash inflow from operating activities.

13 Land. The changes in the balances of both inventory and prepaid insurance were accounted for in previous spreadsheet entries (4, and 8). Land is the next account whose change has yet to be fully explained. We discovered in a previous transaction that a sale of land caused a \$10 million reduction in the account. Yet, the account shows a net increase of \$20 million. It would be logical to assume that the unexplained increase of \$30 million was due to a purchase of land. The transaction described in item d) of Illustration 21-1 supports that assumption and is portrayed in the following spreadsheet entry.

A \$30 million cash outflow is reported as a cash outflow from investing activities. The account that was used to purchase the land is the account that was used to purchase the land.

| | |
|-------------------------|----|
| Entry (13) Land given: | |
| Cash (purchase of land) | 30 |

The \$30 million payment is reported as a cash outflow from investing activities.

14 Buildings and Equipment. While examining a previous transaction entry (9), we determined that the buildings and equipment account was reduced by \$14 million from the sale of used equipment. And yet the account shows a net increase of \$6 million for the year. The accounting records (item e) of Illustration 21-1) reveal the remaining unexplained cause of the net increase. New equipment costing \$20 million was purchased by issuing a \$20 million note payable. Recall from the discussion in a previous section of this chapter that, although this is a noncash transaction, it represents both a significant investing activity (investing in new equipment), and a significant financing activity (financing the acquisition with long-term debt).

The journal entry used to record the transaction when the equipment was acquired also serves as the spreadsheet entry.

Investing in new equipment is reported as a cash outflow from investing activities. The acquisition with long-term debt is a significant financing activity.

| | |
|---|----|
| Entry (14) Buildings and equipment given: | |
| Note payable (given) | 20 |

Remember that the statement of cash flows section of the spreadsheet will serve as the basis for our preparation of the formal statement. But the noncash entry above will not affect the cash flows section of the spreadsheet. Because we want to report this noncash investing and financing activity when we prepare the statement of cash flows, it is helpful to "mark" the spreadsheet entry as a reminder not to overlook this transaction when the statement is prepared. Crosses (X) serve this purpose on the spreadsheet in Illustration 21-1A.

ADDITIONAL CONSIDERATIONS

Payments on Debt

When a debt, such as the note payable above, is paid, the payment is reported on a statement of cash flows as a financing activity. However, any interest paid on the debt is reported as a cash outflow from operating activities. The reason is that interest

expense is a component of net income, and the cash effects of income statement elements are reported as cash flows from operating activities. For each installment payment, the lessee reports both an amount that represents a reduction of principal in a cash outflow from operating activities and the interest portion as a cash outflow from financing activities.

Leases

As we discussed in Chapter 15, lease arrangements vary and the ways we account for them also vary with how leases differ in a statement of cash flows depending on their type. Lease payments to the lessor, revenue for the lessee, represent cash payments for operating leases in a statement of operating activities. **Capital leases**, on the other hand, are being amortized outwardly as leases, but which are in substance accounted for as such. Each installment payment by the lessee includes both an amount that represents interest and a reduction of principal. In a statement of cash flows, then, the lessee reports the interest portion as a cash outflow from operating activities and the principal portion as a cash outflow from financing activities. On the other side of the transaction, the lessor in a direct financing lease reports the interest portion as a cash inflow from operating activities and the principal portion as a cash inflow from investing activities. Both the lessee and lessor report the lease as its investment as a noncash transaction, though, that a **sales-type lease** differs from a direct financing lease in that we assume the lessor is actually selling its product. Consistent with reporting sales of products under installment sales agreements, the lessor reports cash receipts from a sales-type lease as cash inflows from operating activities.

15. Bonds Payable. The balance on the bonds payable account decreased during the year by \$15 million. Illustration 21-10 (A) reveals the cause. Cash was paid to retire \$15 million face value of bonds. The spreadsheet entry that duplicates the journal entry that was recorded when the bonds were retired is:

| | \$ in millions) |
|---|-----------------|
| Entry 15) Bonds payable (\$15 million) | |
| Cash (retirement of bonds payable) | 15 |

The cash outflow is reported as a financing activity.

ADDITIONAL CONSIDERATION

The description of the transaction stipulated that \$15 million of bonds were retired at their maturity on the first day of the year. Thus, any discount or premium on the bonds would have been completely amortized before the start of the year. If bonds are retired prior to their scheduled maturity, any unamortized discount or premium would be removed from the accounts at that time. For instance, assume that the bonds above were callable at \$16 million and that \$1 million of unamortized discount remained when they were retired by a cash at that price. The spreadsheet entry would be revised as follows:

| | \$ in millions) |
|--|-----------------|
| Entry 15) Bonds payable (revised) | |
| Loss on early extinguishment of bonds | 1 |
| Discount on bonds payable | 1 |
| Cash (retirement of bonds payable) | 16 |

The loss, of course, would not be reported on the statement of cash flows. The amortization of the discount, however, would affect a previous spreadsheet entry. In entry 7 we concluded that the decrease in discount on bonds payable was due to the amortization of \$2 million of the discount when recording world interest expense. However, the early retirement assumed above had occurred, that transaction would have accounted for \$1 million of the \$2 million decrease in the discount. Entry 7 would be modified as follows:

| | | (\$ in millions) |
|---------------------------------|--|------------------|
| Entry (7) Bond interest expense | | 5 |
| Interest expense | | |
| Discount on bonds payable | | |
| Cash paid to bondholders | | 4 |

16-17. Common Stock. The comparative balance sheets indicate that the common stock account balance increased by \$30 million. We look to the accounting records—this time on 2-1 item (g)—for an explanation. Two transactions, a stock dividend and a sale of new shares of common stock, combined to cause the increase. To create the spreadsheet entries for our analysis, we replicate the journal entries for the two transactions as described below.

Remember from Chapter 18 that to record a small stock dividend, we capitalize retained earnings for the market value of the shares distributed—in this case, 1 million shares at \$13 per share, or \$13 million. The entry is:

| | (\$ in millions) |
|--|------------------|
| Entry (16) Retained earnings—1 million shares × \$13 | 13 |
| Common stock—1 million shares × \$10 per share | 10 |
| Paid-in capital—excess of par—reference: | |

Also recall from the discussion of noncash investing and financing activities earlier in the chapter, that stock dividends do not represent a significant investing or financing activity. Therefore, this transaction is not reported on the statement of cash flows. We include the entry in our spreadsheet analysis only to help explain changes in the account balances affected.

The sale of 2 million shares of common stock at \$13 per share is represented by the following spreadsheet entry:

| | (\$ in millions) |
|--|------------------|
| Entry (17) Cash from sale of common stock | 26 |
| Common stock (\$10 × 2 million shares) | 20 |
| Paid-in capital—excess of par (\$3 × 2 million shares) | 6 |

The cash inflow is reported on the statement of cash flows as a financing activity.

ADDITIONAL CONSIDERATION

If cash is paid to retire outstanding shares of stock or to purchase those shares as treasury stock, the cash outflow would be reported on a statement of cash flows as a financing activity.

Together, the two entries above account for both the \$30 million increase in the common stock account and the \$9 million increase in paid-in capital—excess of par.

18. Retained Earnings. The stock dividend in entry (16) above includes a \$13 million reduction of retained earnings. Previously, we saw in entry (11) that net income increased retained earnings by \$1.2 million. The net reduction of \$2 million accounted for by these two entries leaves \$5 million of the \$6 million net decrease in the account unexplained.

Although this transaction does not include a cash flow, we include it in our spreadsheet analysis because we include the spreadsheet entry to help explain changes in the three account balances affected.

The sale of common stock, entry (17), is the only transaction that affects cash flows. It is a financing activity because cash is paid in capital—excess of par.

| Retained Earnings | | | |
|---------------------|----|---|-------------------|
| | 25 | | Beginning balance |
| (16) Stock dividend | 2 | 2 | Net income |
| (18) Cash dividend | 7 | 7 | |
| | | 9 | Ending balance |

Without additional information about the \$5 million decrease to retained earnings, we might assume it was due to a \$5 million cash dividend. This assumption is unnecessary, though, because the cash dividend is described in Illustration 2.14. Item (b).

| Retained Earnings | | | |
|---------------------|----|----|-------------------|
| | 25 | | Beginning balance |
| (16) Stock dividend | 13 | 13 | Net income (\$13) |
| (18) Cash dividend | 5 | 5 | |
| | | 19 | Ending balance |

The spreadsheet entry is

| | \$ in millions | |
|------------------------------------|----------------|---|
| Entry 18) Retained earnings | 5 | |
| Cash payment of cash dividends | | 5 |

The cash dividend accounts for the previously unexplained change in retained earnings.

19. Completing the Spreadsheet. In preparing the spreadsheet to this point, we have analyzed each noncash account on both the income statement and the balance sheet. Our purpose was to identify the transactions that, during the year, had affected each account. By recreating each transaction in the form of a spreadsheet entry—in effect, duplicating the journal entry that had been used to record the transaction—we were able to explain the change in the balance of each account. That is, the debits and credits in the changes columns of the spreadsheet accounts fix the increase or decrease of each noncash account. When a transaction being entered on the spreadsheet included an operating, investing, or financing activity, we entered that portion of the entry under the corresponding heading of the statement of cash flows section of the spreadsheet. Since, as noted earlier, there can be no operating, investing, or financing activity without a corresponding change in one or more of the noncash accounts, we should feel confident at this point that we have identified all of the activities that should be reported on the statement of cash flows.

To check the accuracy of the analysis, we compare the change in the balance of the cash account with the net change in cash flows produced by the activities listed in the statement of cash flows section of the spreadsheet. The net increase (decrease) in cash flows from each of the statement of cash flows categories is entered in the extreme right column of the spreadsheet. By reference to Illustration 2.14A, we see that net cash flows from operating, investing, and financing activities are \$22 million, \$(9) million, and \$6 million, respectively. Together these activities provide a net increase in cash of \$19 million. This amount corresponds to the increase in the balance of the cash account from \$20 million to \$39 million. To complete the spreadsheet, we include the final spreadsheet entry

The cash flows section of the spreadsheet provides information to be used in the statement of cash flows.

| | \$ in millions | |
|---|----------------|---|
| Entry 19) Cash | 9 | |
| Net increase in cash | | 9 |
| From statement of cash flows activities | | 9 |

As a final check of accuracy, we can confirm that the total of the debits is equal to the total of the credits in the changes columns of the spreadsheet.¹⁹

¹⁹The mechanical and computational aspects of the spreadsheet method are simplified greatly when performed on an electronic spreadsheet such as Microsoft Excel.

The spreadsheet is now complete. The statement of cash flows can now be prepared directly from the spreadsheet simply by presenting the items included in the statement of cash flows section of the spreadsheet in the normal format of the statement.

The statement of cash flows from a recent report of Storage Technology Corporation are shown in Graphic 21-9. Notice that the financing activities schedule was created by Storage Technology on the statement of cash flows itself shown below. Many companies report the schedule separately in the footnotes to the financial statements.

GRAPHIC 21-9 Statement of Cash Flows Storage Technology Corporation

| STORAGE TECHNOLOGY CORPORATION
Consolidated Statements of Cash Flows | | | |
|--|-----------|-------------|--------------|
| \$ in millions | 2004 | 2003 | 2002 |
| Operating Activities | | | |
| Net income from operations | \$ 10,107 | \$2,246.49 | \$6,615 |
| Depreciation, depletion, and amortization | 2,364 | 834.54 | 7,466.59 |
| Goodwill impairment | 5,231 | 74.4 | 0 |
| Provision for doubtful accounts | 27 | 8 | 1,044 |
| Provision for litigation | 2,077 | 7.93 | 5.25 |
| Net cash provided by operating activities | 40,806 | 3,067.77 | 16,130.73 |
| Investing Activities | | | |
| Acquisition of investments | 83 | 71,243 | 76,105 |
| Acquisition of capital investments | 19,168 | 43,443 | 58,150 |
| Acquisition of property, plant, and equipment | 5,111 | 42,555 | 168,059 |
| Disposal of cash and PPE | 0 | 3,757 | 0 |
| Net cash used in investing activities | 24,162 | 87,298 | 292,314 |
| Financing Activities | | | |
| Repayment of long-term debt | 1,543 | 0 | 0 |
| Proceeds from capital stock offerings | 92 | 54.4 | 2,444 |
| Dividend payments | 58 | 7.5 | 0 |
| Repayment of short-term debt | 5,943 | 77.71 | 0 |
| Repayment of debt | 0 | 0 | 17,607 |
| Net cash provided by financing activities | 97 | 62.74 | 199.74 |
| Change in exchange rate changes in cash | 1.31 | 41.4 | 0 |
| Increase (decrease) in cash equivalents | 16,644 | 24,463 | 17,319 |
| Cash and cash equivalents, beginning of year | 54 | 1,444 | 8,125 |
| Cash and cash equivalents, end of year | 71,088 | \$ 25,907 | \$ 25,444 |
| Reconciliation of Net Income to Net Cash Provided by Operating Activities | | | |
| Net income | \$ 10,107 | \$ 2,246.49 | \$ 6,615 |
| Depreciation and amortization expense | 2,364 | 834.54 | 7,466.59 |
| Goodwill impairment | 5,231 | 74.4 | 0 |
| Provision for doubtful accounts | 27 | 8 | 1,044 |
| Provision for litigation | 2,077 | 7.93 | 5.25 |
| Other adjustments to net income | 744 | 27,470 | 7,090 |
| Change in assets and liabilities | | | |
| Accounts receivable | 14,000 | 75,657 | 26,750 |
| Inventory | 1,001 | 250 | 2,417 |
| Prepaid expenses and other assets | 45 | 20 | 0 |
| Share payments | 27 | 1,304 | 2,444 |
| Deferred income tax expenses | 1,033 | 3,755 | 0 |
| Change in other assets and liabilities | | | |
| Accounts payable | 4,500 | 7.5 | 2,444 |
| Accounts receivable | 7,097 | 7.5 | 7,097 |
| Income taxes payable | 1,573 | 1,110 | 1,110 |
| Income taxes payable | 7,097 | 4,110 | 7,097 |
| Net cash provided by operating activities | \$ 40,806 | \$ 3,067.77 | \$ 16,130.73 |

ETHICAL DILEMMA

"We must get it," Courtney Lowell, president of Industrial Fasteners, roared. "Without it, we're in big trouble." The "it" Mr. Lowell referred to is the renewal of a \$14 million loan with Community First Bank. The big trouble he fears is the lack of funds necessary to repay the existing debt and few, if any, prospects for raising the funds elsewhere.

Mr. Lowell had just hung up the phone after a conversation with a bank vice president in which it was made clear that his year's statement of cash flow must look better than last year's. Mr. Lowell knows that improvements are not on course to happen. In fact, cash flow projections were dismal.

Later the day, Tim Cratchel, assistant controller, was summoned to Mr. Lowell's office. "Cratchel," Lowell barked, "I've looked at our accounts receivable. Think we can generate quite a bit of cash by selling or factoring most of those receivables. I know it will cost us more than if we collect them ourselves, but it sure will make our cash flow picture look better."

Is there an ethical question facing Cratchel?

PERSPECTIVE

A statement of cash flows (or funds flow statement, some places) is optional in many countries. However, in some countries, many real institutional companies voluntarily provide a statement of cash flows either as a primary statement or in disclosure notes. In some countries, such as the United Kingdom, it's required only for firms listed on a stock exchange.

CONCEPT REVIEW EXERCISE

The comparative balance sheets for 2006 and 2005 and the income statement for 2006 are given below for Beneficial Drill Company. Additional information from Beneficial Drill's accounting records is provided also.

COMPREHENSIVE REVIEW

Prepare the statement of cash flows of Beneficial Drill Company for the year ended December 31, 2006. Present cash flows from operating activities by the direct method and use a spreadsheet to assist in your analysis.

BENEFICIAL DRILL COMPANY
Comparative Balance Sheets
December 31, 2006 and 2005
\$ in millions

| Assets | 2006 | 2005 |
|--|---------------|---------------|
| Cash | \$ 40 | \$ 40 |
| Accounts receivable | 49 | 100 |
| Less: Allowance for uncollectible accounts | (5) | 4 |
| Investment revenue receivable | 3 | 2 |
| Inventory | 15 | 10 |
| Prepaid insurance | 2 | 3 |
| Long-term investments | 77 | 60 |
| Land | 110 | 80 |
| Buildings and equipment | 220 | 240 |
| Less: Accumulated depreciation | (35) | (40) |
| Patent | 18 | 16 |
| | <u>\$ 411</u> | <u>\$ 587</u> |

Liabilities

| | | |
|-------------------------------|-------|-------|
| Accounts payable | \$ 25 | \$ 30 |
| Salaries payable | 2 | 5 |
| Bond interest payable | 4 | 7 |
| Income tax payable | 6 | 7 |
| Deferred income tax liability | 5 | 4 |
| Notes payable | 5 | 0 |
| Bonds payable | 50 | 30 |
| Loss discount on bonds | (9) | 0 |

Shareholders' Equity

| | | |
|--------------------------------|---------------|---------------|
| Common stock | 200 | 200 |
| Preferred stock—excess of par | 44 | 40 |
| Retained earnings | 178 | 179 |
| Less: Treasury stock (at cost) | (7) | 0 |
| | <u>\$ 225</u> | <u>\$ 219</u> |

BENEFICIAL DRILL COMPANY
Income Statement
For Year Ended December 31, 2006
 (\$ in millions)

| | | |
|--|-------|---------------------|
| Revenues | | |
| Sales revenue | \$200 | |
| Investment revenue | 6 | |
| Interest revenue—sale of treasury bills | 1 | \$207 |
| Expenses | | |
| Cost of goods sold | 10 | |
| Salaries expense | 30 | |
| Depreciation expense | 5 | |
| Patent amortization expense | 1 | |
| Bad debts expense | 4 | |
| Insurance expense | 3 | |
| Bond interest expense | 4 | |
| Extraordinary loss on destruction of equipment | \$ 10 | |
| Less: Tax savings | (5) | |
| Income tax expense | 12 | (154) |
| Net income | | <u>\$ 23</u> |

Additional information from the accounting records:

- During 2006, \$1 million of customer accounts were written off as uncollectible.
- Investment revenue includes Beneficial Drill Company's \$3 million share of the net income of Hammer Company, an equity method investee.
- Treasury bills were sold during 2006 at a gain of \$1 million. Beneficial Drill Company classifies its investments in Treasury bills as cash equivalents.
- A machine that originally cost \$60 million and was one-half depreciated, was rendered unusable by a freak bolt of lightning. Most major components of the machine were unharmed and were sold for \$20 million.
- Temporary differences between pretax accounting income and taxable income caused the deferred income tax liability to increase by \$1 million.
- The common stock of Wrench Corporation was purchased for \$14 million as a long-term investment.
- Land costing \$30 million was acquired by paying \$15 million cash and issuing a 3%, seven-year, \$15 million note payable to the seller.
- New equipment was purchased for \$40 million cash.
- \$20 million of bonds were sold at face value.
- On January 19, 2006, the company issued a 5% stock dividend (1 million shares). The market price of the \$10 par value common stock was \$14 per share at that time.

1. Cash dividends of \$ 0 million were paid to shareholders.

In November, 500,000 common shares were repurchased as treasury stock at a cost of \$7 million. Drift took the cost method to account for treasury stock.

SOLUTION

BENEFICIAL DRIFT COMPANY
Spreadsheet for the Statement of Cash Flows

| | Dec. 31
2005 | Changes | | Dec. 31
2006 |
|--|-----------------|---------|---------|-----------------|
| | | Debits | Credits | |
| Balance Sheet | | | | |
| Assets | | | | |
| Cash | 40 | | (20) | 20 |
| Accounts receivable | 100 | | 5 | 99 |
| less: Allowance for uncollectible accounts | (4) | | (3) | (5) |
| Investment revenue receivable | 2 | 2 | | 2 |
| Inventory | 10 | 5 | | 5 |
| Prepaid insurance | 3 | | (8) | (5) |
| Long-term investments | 60 | (2) | | 58 |
| Land | 80 | (14) | | 66 |
| Buildings and equipment | 280 | (15) | 40 | 305 |
| less: Accumulated depreciation | (60) | (10) | | (70) |
| Patent | 16 | | (7) | 9 |
| | <u>587</u> | | | <u>621</u> |
| Liabilities | | | | |
| Accounts payable | 30 | (4) | | 26 |
| Notes payable | | (5) | | (5) |
| Bond interest payable | 2 | | (2) | |
| Income tax payable | 7 | 11 | | 18 |
| Deferred income tax liability | 4 | | 1 | 5 |
| Notes payable | 0 | | (4) | (4) |
| Bonds payable | 30 | | (6) | 24 |
| less: Discount on bonds | (1) | | (9) | (10) |
| Shareholders' Equity | | | | |
| Common stock | 200 | | 7 | 207 |
| Paid-in capital—excess of par | 40 | | (1) | 39 |
| Retained earnings | 179 | (17) | 14 | 176 |
| less: Treasury stock | | (1) | | (1) |
| | <u>58</u> | | | <u>621</u> |
| Income Statement | | | | |
| Revenues: | | | | |
| Sales revenue | | | (1) | 200 |
| Investment revenue | | | (2) | 6 |
| Investment revenue—sale of treasury bills | | | (3) | 1 |
| Expenses: | | | | |
| Cost of goods sold | (4) | 1 | | (3) |
| Salaries expense | (5) | 30 | | 25 |
| Income tax expense | (6) | 5 | | (1) |
| Patent amortization expense | (7) | 1 | | (6) |
| Bond interest expense | (1) | 4 | | (3) |
| Insurance expense | (8) | 3 | | (5) |
| Bond interest expense | (9) | 14 | | (5) |
| Extraordinary loss | (10) | 10 | | (1) |
| less: Tax savings | | | (1) | 5 |
| Income tax expense | (11) | (2) | | (9) |
| Net income | (12) | 23 | | 23 |

| | Dec. 31
2005 | Changes | | Dec. 31
2006 |
|--------------------------------|-----------------|---------|---------|-----------------|
| | | Debits | Credits | |
| Statement of Cash Flows | | | | |
| Operating Activities: | | | | |
| Cash inflows: | | | | |
| From customers | (1) | 198 | | |
| From investment revenue | (2) | 2 | | |
| From sale of Treasury bills | (3) | 1 | | |
| Cash outflows: | | | | |
| To suppliers of goods | | | (4) | 22 |
| To employees | | | (5) | 10 |
| For insurance expense | | | (8) | 2 |
| For bond interest expense | | | (9) | 1 |
| For income taxes | | | (11) | 7 |
| Net cash flows | | - | | 21 |
| Investing Activities: | | | | |
| Sale of equipment | (10) | 20 | | |
| Purchase of LT investments | | | (13) | 14 |
| Purchase of land | | | (14) | 15 |
| Purchase of equipment | | | (15) | 40 |
| Net cash flows | | | | (49) |
| Financing Activities: | | | | |
| Sale of bonds payable | (16) | 20 | | |
| Payment of cash dividends | | | 9 | 10 |
| Purchase of treasury stock | | | 9 | 7 |
| Net cash flows | | | | 1 |
| Net decrease in cash | (20) | 20 | | (21) |
| Totals | | 638 | 638 | |

BENEFICIAL DRILL COMPANY
Statement of Cash Flows
For Year Ended December 31, 2006
in millions

Cash Flows from Operating Activities

Cash Inflows:

| | |
|-----------------------------|-------|
| From customers | \$198 |
| From investment revenue | 2 |
| From sale of Treasury bills | 1 |

Cash outflows:

| | |
|---------------------------|-----|
| To suppliers of goods | 22 |
| To employees | (3) |
| For insurance expense | (2) |
| For bond interest expense | (1) |
| For income taxes | (7) |

Net cash flows from operating activities

\$26

Cash Flows from Investing Activities

| | |
|-----------------------------------|------|
| Sale of equipment | \$20 |
| Purchase of long-term investments | (14) |
| Purchase of land | (15) |
| Purchase of equipment | (40) |

Net cash flows from investing activities

(49)

| | |
|---|--------------|
| Cash Flows from Financing Activities | |
| Payment of bonds payable | \$100 |
| Payment of cash dividends | 50 |
| Purchase of treasury stock | 7 |
| Net cash flows from financing activities | 3 |
| Net decrease in cash | \$500 |
| Cash balance, January 1 | 40 |
| Cash balance, December 31 | \$ 20 |
| Noncash Investing and Financing Activities | |
| Acquired \$30 million of land by paying cash and issuing a 13%, 7-year note as follows: | |
| Cost of land | \$30 |
| Cash paid | 15 |
| Note issued | \$15 |

PREPARING AN SCF: THE INDIRECT METHOD OF REPORTING CASH FLOWS FROM OPERATING ACTIVITIES

PART C

Getting There through the Back Door

The presentation of cash flows from operating activities illustrated in Part B is referred to as the *direct method*. By this method, the cash effect of each operating activity (i.e., income statement item) is reported directly on the statement of cash flows. For instance, cash received from customers is reported as the cash effect of sales activities, and cash paid to suppliers is reported as the cash effect of cost of goods sold. Income statement items that have no cash effect, such as depreciation expense, bad debt expense, gains, and losses, are simply not reported.

As pointed out previously, a permissible alternative is the *indirect method*, by which the net cash increase or decrease from operating activities is derived indirectly by starting with reported net income and working backwards to convert that amount to a cash basis. The derivation by the indirect method of net cash flows from operating activities for UBC is shown in Illustration 21-18. For the adjustment amounts, you may wish to refer back to UBC's balance sheets and income statement presented in Illustration 2.

Cash Flows from Operating Activities—Indirect Method and Reconciliation of Net Income to Net Cash Flows from Operating Activities

| | |
|---|-------------|
| Net income | \$12 |
| Adjustments for noncash effects: | |
| Increase in accounts receivable | 7 |
| Gain on sale of land | (8) |
| Decrease in inventory | 4 |
| Increase in accounts payable | 6 |
| Increase in salaries payable | 2 |
| Depreciation expense | 3 |
| Discount on bonds payable | 2 |
| Decrease in prepaid insurance | 3 |
| Loss on sale of equipment | 2 |
| Decrease in income tax payable | (2) |
| Net cash flows from operating activities | \$22 |

ILLUSTRATION 21-18
Indirect Method

The indirect method derives the net cash increase or decrease from operating activities indirectly by adjusting net income for noncash effects. The adjustments are shown in the table below.

Amounts are in millions of dollars.

Notice that the indirect method yields the same \$22 million net cash flows from operating activities as does the direct method. This is understandable when you consider that the indirect method simply reverses the differences between the accrual-based income statement and cash flows from operating activities. We accomplish this as described in the next two sections.

Components of Net Income that Do Not Increase or Decrease Cash

Amounts that were subtracted in determining net income but did not reduce cash are added back to net income to reverse the effect of their having been subtracted. For example, depreciation expense and amortization expense, though subtracted back to net income when they are being equal, this restores net income to what it would have been had depreciation and the like not been subtracted at all.

Similarly, amounts that were added in determining net income but did not increase cash are subtracted from net income to reverse the effect of their having been added. For example, UBC's gain on sale of land is deducted from net income. Here's why. UBC sold for \$18 million (and that originally cost \$10 million). Recording the sale produced a gain of \$8 million, which UBC appropriately included in its income statement. But did this gain increase UBC's cash? No. Certainly selling the land increased cash—by \$18 million. We therefore include the \$18 million as a cash inflow in the statement of cash flows. However, the sale of land is an investing activity. The gain itself, though, is simply the difference between cash received in the sale of land (reported as an investing activity) and the original cost of the land. If UBC also reported the \$8 million gain as a cash flow from operating activities, in addition to reporting \$18 million as a cash flow from investing activities, UBC would report the \$8 million twice. So, because UBC added the gain in determining its net income but the gain had no effect on cash, the gain must now be subtracted from net income to reverse the effect of its having been added.

Components of Net Income that Do Increase or Decrease Cash

For components of net income that increase or decrease cash, but by an amount different from that reported on the income statement, net income is adjusted for changes in the balances of related balance sheet accounts to convert the effects of these items to a cash basis. For example, sales of \$100 million are included on the income statement as a component of net income, and yet, since accounts receivable increased by \$2 million, only \$98 million cash was collected from customers during the reporting period. Sales are converted to a cash basis by subtracting the \$2 million increase in accounts receivable. Here's another example:

The income statement reports salaries expense as \$13 million. Just because employees earned \$13 million during the reporting period, though, doesn't necessarily mean UBC paid those employees \$13 million in cash during the same period. In fact, we see in the comparative balance sheets that salaries payable increased from \$1 million to \$3 million; UBC owes its employees \$2 million more than before the year started. The company must not have paid the entire \$13 million expense. By analyzing salaries expense in relation to the change in salaries payable, we can determine the amount of cash paid to employees:

| Salaries Payable | |
|------------------------------|-----------------------------|
| | 1 Beginning balance |
| Cash paid to employees | 2 Salaries expense |
| Increase in salaries payable | 3 Increase salaries payable |
| | 4 Ending balance |

This inspection indicates that UBC paid only \$11 million cash to its employees; the remaining \$2 million of salaries expense is reflected as an increase in salaries payable. From a cash perspective, then, by subtracting \$2 million for salaries in the income statement, UBC

has subtracted \$2 million more than the reduction in cash. Adding back the \$2 million leaves UBC in the same position as if it had deducted only the \$1 million cash paid to employees.

Following a similar analysis of the cash effects of the remaining components of net income, those items are likewise converted to a cash basis by adjusting net income for increases and decreases in related accounts.

For components of net income that increase or decrease cash by an amount exactly the same as that reported on the income statement, an adjustment of net income is required. For example, investment revenue of \$3 million is included in UBC's \$2 million net income amount. Because \$3 million also is the amount of cash received from this activity, this element of net income already represents its cash effect and needs no adjustment.¹⁰

Comparison with the Direct Method

The indirect method is compared with the direct method in Graphic 21-10, using the data of UBC. To better illustrate the relationship between the two methods, the adjustments to net income using the indirect method are presented parallel to the related cash inflows and cash outflows of the direct method. The income statement is included in the graphic to demonstrate that the indirect method also serves to reconcile differences between the elements of that statement and the cash flows reported by the direct method.



GRAPHIC 21-10 Comparison of the Indirect Method and the Direct Method of Determining Cash Flows from Operating Activities

| Income Statement | | Cash Flows from Operating Activities | | | |
|---------------------------|--------|---|-------------|---|-------------|
| | | Indirect Method | | Direct Method | |
| | | Adjustments: | | | |
| Sales | \$ 800 | 1) Decrease in accounts receivable | 500 | Cash received from customers | 500 |
| Investment revenue | 3 | No adjustment (see Note 10) | 3 | | |
| | | 2) Decrease in contribution margin from term leases | | Cash received from term leases | 3 |
| Gain on sale of land | 8 | Gain on sale of land | 8 | Not reported on cash flow statement | |
| Loss on goods sold | (60) | Decrease in inventory | 4 | | |
| | | 3) Decrease in accounts payable | 6 | Cash paid to suppliers | (50) |
| Salaries expense | (5) | Increase in salaries payable | 3 | Cash paid to employees | (2) |
| Depreciation expense | (7) | Depreciation expense | 3 | Not reported on cash flow statement | |
| Interest expense | (5) | Decrease in interest payable | 2 | Cash paid on interest | (3) |
| Insurance expense | (7) | Decrease in prepaid insurance | 3 | Cash paid on insurance | (4) |
| Loss on sale of equipment | (2) | Loss on sale of equipment | 2 | Not reported on cash flow statement | |
| Income tax expense | (4) | Decrease in income tax payable | (2) | Cash paid for income taxes | |
| | | Net cash flows from operating activities | \$42 | Net cash flows from operating activities | \$42 |

As a practical consideration, you might notice that the adjustments to net income using the indirect method follow a convenient pattern. Increases in related assets are deducted from net income (e.g., the increase in accounts receivable) when converting to cash from operating activities. Conversely, decreases in assets are added (inventory and prepaid insurance in this case). Changes in related liabilities are handled in the opposite way. Increases in related liabilities are added to the subtotal (e.g., the increase in salaries payable, while decreases in liabilities are subtracted from the subtotal).

¹⁰As reported in the prior period, the decrease in cash flows from operating activities is \$2 million. This is the same as the decrease in cash flows from operating activities reported in the prior period, adjusted for the \$2 million increase in cash flows from operating activities.

¹¹As reported in the prior period, the decrease in cash flows from operating activities is \$2 million. This is the same as the decrease in cash flows from operating activities reported in the prior period, adjusted for the \$2 million increase in cash flows from operating activities.

Of course, these are adjustments to net income that effectively convert components of income from reported accrual amounts to a cash basis. The other adjustments to net income—gain, depreciation, loss, as pointed out earlier—are to get rid of the three income statement components that have no effect at all on cash. This pattern is summarized in Graphic 21-11.

GRAPHIC 21-11
Adjustments to
Convert Net Income to
a Cash Basis—Indirect
Method

| Type of Adjustment | To Adjust for Noncash Effect |
|--|------------------------------|
| Income statement components that have no effect on cash flow (depreciation, gain, loss) | Deduct from net income |
| Income statement components that have no effect on cash but are deductions from earnings | Add to net income |
| Increases in assets related to an income statement component | Deduct from net income |
| Decreases in assets related to an income statement component | Add to net income |
| Increases in liabilities related to an income statement component | Add to net income |
| Decreases in liabilities related to an income statement component | Deduct from net income |

Although either the direct method or the indirect method is permitted, the FASB strongly encourages companies to report cash flows from operating activities by the direct method. The obvious appeal of this approach is that it reports specific operating cash receipts and operating cash payments, which is consistent with the primary objective of the statement of cash flows. Investors and creditors gain additional insight into the specific sources of cash receipts and payments from operating activities revealed by this reporting method. Also, stated, users can more readily interpret and understand the information presented because the direct method avoids the confusion caused by reporting noncash items and other reconciling adjustments under the caption *cash flows from operating activities*. Nonetheless, the vast majority of companies choose to use the indirect method. Reasons for this choice range from longstanding tradition to the desire to withhold as much information as possible from competitors.²²

Reconciliation of Net Income to Cash Flows from Operating Activities

As we discussed earlier, whether cash flows from operating activities are reported by the direct method or by the indirect method, the financial statements must report a reconciliation of net income to net cash flows from operating activities. When the direct method is used, the reconciliation is presented in a separate schedule and is identical to the presentation of net cash flows from operating activities by the indirect method. In other words, *Question 21-11* also serves as the reconciliation schedule to accompany a statement of cash flows using the direct method. Obviously, a separate reconciliation schedule is not required when using the indirect method because the cash flows from operating activities section of the statement of cash flows *is* a reconciliation of net income to net cash flows from operating activities.

Remember that the direct and indirect methods are alternative approaches to deriving net cash flows from operating activities only. The choice of which method is used for this

²²Strong arguments are made for the FASB requiring the direct method by Paul R. Babin, Paul H. W. Collins, and Bruce P. Hodge in "Methods, Means, and Means to Success: Accounting for Cash Flows from Operating Activities," *Journal of Accounting, Management, and Information Technology*, Vol. 11, No. 1, 2001. Also, see "Reconciling the Indirect Method to the Direct Method," *Journal of Accounting, Management, and Information Technology*, Vol. 11, No. 1, 2001. The authors of this article argue that the indirect method is more difficult to understand and is more likely to be misused than the direct method. They also argue that the direct method is more likely to be used by companies that are more likely to be successful in the long run.

purpose does not affect the way cash flows from investing and financing activities are identified and reported.

The statements of cash flows from the annual report of Hewlett-Packard Company, which uses the indirect method, are shown in Graphic 21-12.

GRAPHIC 21-12 Statement of Cash Flows—Indirect Method—Hewlett-Packard

| HEWLETT-PACKARD
Consolidated Statements of Cash Flows | | | |
|--|-----------|----------|----------|
| For the Fiscal Years Ended October 31 | | | |
| \$ in millions | 2004 | 2003 | 2002 |
| Cash Flows from Operating Activities: | | | |
| Net earnings (loss) | \$ 49 | \$ 139 | \$ 193 |
| Adjustments to reconcile net earnings (loss) to cash provided by operating activities: | | | |
| Depreciation and amortization | 2,395 | 2,527 | 2,112 |
| Provision for doubtful accounts | 78 | 112 | 299 |
| Provision for losses on sales | 367 | 119 | 381 |
| Goodwill impairment charges | 14 | 800 | 760 |
| Change in deferred charges | 9 | 28 | 494 |
| Change in sales of earnings | 26 | 279 | 351 |
| Other items | 89 | 4 | 214 |
| Change in assets and liabilities: | | | |
| Accounts and financing receivables (payable) | 124 | 68 | 299 |
| Accounts payable | 1,324 | 1,011 | 114 |
| Prepaid expenses | 34 | 43 | 35 |
| Restructuring | 1,611 | 1,240 | 707 |
| Other assets and liabilities | 279 | 196 | 497 |
| Net cash provided by operating activities | 5,082 | 6,021 | 5,444 |
| Cash Flows from Investing Activities: | | | |
| Purchases of property, plant, and equipment | (2,266) | 265 | 71 |
| Proceeds from sale of property, plant, and equipment | 28 | 153 | 143 |
| Purchases of marketable securities | (1,511) | 1,490 | 35 |
| Maturities and sales of investments | 1,644 | 875 | 381 |
| Business acquisitions, net of acquisition costs | 74 | 49 | 1,147 |
| Acquisition of treasury investments | — | — | 879 |
| Net cash used in investing activities | (2,431) | 572 | 1,778 |
| Cash Flows from Financing Activities: | | | |
| Repayment of long-term debt (payment of dividend payable and issuance of debt) | 1,721 | (223) | (2,402) |
| Payment of long-term debt | 9 | 249 | 1,529 |
| Repurchase of long-term convertible notes | (285) | (829) | (473) |
| Share repurchase program (net of share withheld under stock plans) | 570 | 132 | 371 |
| Repurchase of common stock | (3,414) | — | 161 |
| Dividends | (1,972) | 277 | (801) |
| Net cash used in financing activities | (4,377) | 134 | 577 |
| Supplemental increase in cash and cash equivalents | 1,575 | 1,794 | 604 |
| Cash and cash equivalents at beginning of period | 14,280 | 92 | 597 |
| Cash and cash equivalents at end of period | \$ 12,678 | \$ 4,288 | \$ 1,922 |
| Note 4: Supplemental Cash Flow Information | | | |
| | 2004 | 2003 | 2002 |
| Cash paid for income taxes | \$ 679 | \$ 144 | \$ 130 |
| Cash paid for interest | 140 | 194 | 116 |
| Net cash received from financing activities: | | | |
| Net increase (decrease) in cash and cash equivalents | 4,288 | 1,794 | 604 |
| Net change in cash and cash equivalents in cash and cash equivalents | 5 | 24 | 24 |

For most companies, expenditures for interest and for taxes are significant. Cash payments for interest and for taxes usually are specifically indicated when the direct method is employed as is the case for **Storage Technology Corporation** reported earlier in Graphic 21-9. When the indirect method is used, these amounts are readily apparent and should be separately reported either on the face of the statement or in an accompanying disclosure note as Exhibit 21-10 shows.

We use a spreadsheet to help prepare a statement of cash flows by the indirect method in Appendix 21A.



DECISION MAKERS' PERSPECTIVE—Cash Flow Ratios

We have emphasized the analysis of financial statements from a decision maker's perspective throughout this text. Often that analysis included the development and comparison of financial ratios. Ratios based on income statement and balance sheet accounts enjoy a high degree of acceptance from which several standard ratios including those described in earlier chapters have evolved. To gain another viewpoint, some analysts supplement their analysis with cash flow ratios. Some cash flow ratios are derived by simply substituting cash flow from operations (CFO) from the statement of cash flows in place of net income in many ratios. That is, they replace those ratios, but to complement them. For example, the times interest earned ratio can be modified to reflect the number of times the cash outflow for interest is provided by cash inflow from operations and any of the profitability ratios can be modified to determine the cash generated from assets. Shareholders' equity ratios, etc. Graphic 21-13 summarizes the calculation and usefulness of several representative cash flow ratios.

GRAPHIC 21-13
Cash Flow Ratios

| | Calculation | Measures |
|-------------------------------------|---|---|
| Performance Ratios | | |
| Cash flow to sales | $\frac{\text{CFO}}{\text{Sales}}$ | Cash generated by each sales dollar |
| Cash return on assets | $\frac{\text{CFO}}{\text{Average total assets}}$ | Cash generated from all resources |
| Cash return on shareholders' equity | $\frac{\text{CFO}}{\text{Average shareholders' equity}}$ | Cash generated from owner-provided resources |
| Cash income | $\frac{\text{CFO}}{\text{Income from continuing operations}}$ | Cash-generated activity from continuing operations |
| Cash flow per share | $\frac{\text{CFO} - \text{Preferred dividends}}{\text{Weighted average shares}}$ | Operating cash flow on a per share basis |
| Sufficiency Ratios | | |
| Debt coverage | $\frac{\text{CFO}}{\text{Total debt}}$ | Income risk and financial leverage |
| Interest coverage | $\frac{\text{CFO}}{\text{Interest taxes}}$ | Ability to satisfy fixed obligations |
| Financing fund | $\frac{\text{CFO}}{\text{Cash outflow for noncurrent assets}}$ | Ability to acquire assets with operating cash flows |
| Debt payment | $\frac{\text{CFO}}{\text{Cash outflow for total repayment}}$ | Ability to pay debts with operating cash flows |
| Dividend payment | $\frac{\text{CFO}}{\text{Cash outflow for dividends}}$ | Ability to pay dividends with operating cash flows |
| Investing and financing activity | $\frac{\text{Cash outflow for investing and financing activities}}{\text{Cash outflow for investing activities}}$ | Ability to acquire assets, pay debts and make distributions to owners |

Cash flow ratios have received limited acceptance or date due, in large part, to the long tradition of accrual-based ratios coupled with the relatively brief time that all companies have published statements of cash flows. A lack of consensus on cash flow ratios by which to make comparisons also has slowed their acceptance. Nevertheless, cash flow ratios offer insight in the evaluation of a company's profitability and financial strength.²⁴ ■

FINANCIAL REPORTING CASE

SOLUTION



1. What are the cash flow aspects of the situation that Mr. Butz may be overlooking in implying his case for a wage increase? How can a company's operations generate a healthy profit and yet produce meager or even negative cash flows? (p. 1057) Positive net income does not necessarily indicate a healthy cash position. A statement of cash flows provides information about cash flows to users when viewing only a company's short-term income statement. Although cash flows from operating activities result from the same activities that are reported on a company's income statement, the two statements reflect transactions on an accrual basis. That is, revenues reported are those earned during the reporting period, regardless of when cash is received, and the expenses incurred in generating those revenues, regardless of when cash is paid. Thus, the very same operations can generate a healthy profit and yet produce meager or even negative cash flows.
2. What information can a statement of cash flows provide about a company's investing activities that can be useful in decisions such as this? (p. 1059) Cash flows from investing activities result from the acquisition and disposition of assets. Information about investing activities is useful to decision makers regarding the nature and magnitude of productive assets being acquired for future use. In the union negotiations, for instance, Mr. Butz may not be aware of the substantial investments underway to replace and update equipment, and the high requirement for cash to meet this need. Finally, the rate at which a company's earnings are accelerated depreciation provides in the later years of assets lives may cause profits to seem artificially high given the necessity to replace those assets at higher prices.
3. What information can a statement of cash flows provide about a company's financing activities that can be useful in decisions such as this? (p. 1060) Information about financing activities provides insights into sources of a company's external financing. Recent debt issues, for instance, might indicate a need for higher cash flows to maintain higher interest charges. Similarly, recent external financing activity may suggest that a company might be unable to produce enough cash internally and, therefore, is placing a greater reliance on external financing through operations. ■

THE BOTTOM LINE

1. Decision makers focus on the prospects of receiving a cash return from their dealings with a firm. But it is the ability of the firm to generate cash flows to itself that ultimately determines the potential for cash flows to investors and creditors. The statement of cash flows fills an information gap left by the balance sheet and the income statement by presenting information about cash flows that the other statements either do not provide or provide only indirectly. The stipulation that companies present the statement of cash flows is a relatively recent requirement. SFAS 95 completed a full-cycle movement of accountability through cash flow reporting, which, in different form, was common practice several decades ago.
2. Cash includes cash equivalents. These are short-term, highly liquid investments that can readily be converted to cash with little risk of loss.

| | Operating Activities | Investing Activities | Financing Activities | Net Change in Cash |
|----------------------|----------------------|----------------------|----------------------|--------------------|
| Operating Activities | 100 | 0 | 0 | 100 |
| Investing Activities | 0 | (20) | 0 | (20) |
| Financing Activities | 0 | 0 | (10) | (10) |
| Net Change in Cash | 100 | (20) | (10) | 70 |

3. Cash flows from operating activities are both inflows and outflows of cash that result from activities reported on the income statement.
4. Unlike the direct method, which directly lists cash inflows and outflows, the indirect method derives cash flows indirectly, by starting with reported net income and working backwards to convert that amount to a cash basis.
5. Cash flows from investing activities are related to the acquisition and disposition of assets other than inventory and assets classified as cash equivalents.
6. Cash flows from financing activities result from the external financing of a business.
7. Noncash investing and financing activities, such as acquiring equipment (an investing activity) by issuing a long-term note payable (a financing activity), are reported in a related disclosure schedule or note.
8. A spreadsheet provides a systematic method of preparing a statement of cash flows by analyzing available data to ensure that all operating, investing, and financing activities are detected. Recording spreadsheet entries that explain account balance changes automatically identifies and classifies the activities to be reported on the statement of cash flows. ■

SPREADSHEET FOR THE INDIRECT METHOD

A spreadsheet is equally useful in preparing a statement of cash flows whether we use the direct or the indirect method of determining cash flows from operating activities. The format of the spreadsheet differs only with respect to operating activities. The analysis of transactions for the purpose of identifying cash flows to be reported is the same. To illustrate Illustration 21A-1 on the next page provides a spreadsheet analysis of the data for UBC.

Two differences should be noted between the spreadsheet in Illustration 21A-1 and the spreadsheet we used earlier for the direct method. First, in the statement of cash flows section of the spreadsheet under the heading of “cash flows from operating activities,” net cash inflows and cash outflows are replaced by net income and the required adjustments for noncash effects. Second, we do not include an income statement section. This section is unnecessary because, using the indirect method, we are not interested in identifying operating activities that cause increases and decreases in cash. Instead, we need from the income statement only the amount of net income, which is converted to a cash basis by adjusting for any noncash amounts included in net income. The spreadsheet entries in journal reform for the indirect method are illustrated in Illustration 21A-2 on page 1094.

Remember that there is no mandatory order in which the account changes must be analyzed. However, since we determine net cash flows from operating activities by working backwards from net income when using the indirect method, it is convenient to start with the spreadsheet entry that represents the credit to retained earnings due to net income. This entry corresponds to spreadsheet entry (1) using the direct method. By entering the debit portion of the entry as the first item under the cash flows from operating activities (CFOA), we establish net income as the initial amount of cash flows from operating activities, which is then adjusted to a cash basis by subsequent entries. Entries (2)–(4) duplicate the transactions that involve noncash components of net income. Changes in current assets and current liabilities that represent differences between revenues and expenses and the cash effects of those revenues and expenses are accounted for by entries (5)–(11). Spreadsheet entries (12)–(19) explain the changes in the balance sheet not already accounted for by previous entries, and are identical to entries (12)–(19) recorded using the direct method.

UNITED BRANDS CORPORATION
Spreadsheet for the Statement of Cash Flows

ILLUSTRATION 21A-1
Indirect Method

| | Dec. 31
2005 | Changes | | Dec. 31
2006 |
|----------------------------------|-----------------|---------|---------|-----------------|
| | | Debits | Credits | |
| Balance Sheet | | | | |
| Assets | | | | |
| Cash | 40 | 91 | | 131 |
| Accounts receivable | 40 | 75 | | 115 |
| Shareholders' equity | 0 | 2 | | 2 |
| Inventory | 50 | | 61 | 111 |
| Prepaid insurance | 6 | | 81 | 87 |
| Accrued liabilities | 60 | 3 | 21 | 40 |
| Buildings and equipment | 5 | 4 | 11 | 10 |
| Less: Accumulated depreciation | 20 | (2) | 4 | 14 |
| | <u>20</u> | | | <u>26</u> |
| Liabilities | | | | |
| Accounts payable | 20 | | 71 | 91 |
| Salaries payable | | | 69 | 69 |
| Income tax payable | 8 | 11 | | 19 |
| Notes payable | 0 | | 14 | 14 |
| Bonds payable | 50 | 15 | | 65 |
| Less: Premium on bonds | (3) | | 10 | (7) |
| Shareholders' Equity | | | | |
| Common stock | 100 | | 16 | 116 |
| Retained earnings | 20 | | 17 | 37 |
| | <u>20</u> | | | <u>37</u> |
| Statement of Cash Flows | | | | |
| Operating activities: | | | | |
| Net income | | | | |
| Adjustments for noncash effects: | | | | |
| Increase in cash | | | 6 | 6 |
| Depreciation expense | 4 | | | 4 |
| Loss on sale of equipment | 3 | | | 3 |
| Increase in accounts receivable | | | 3 | 3 |
| Increase in inventory | | | 61 | 61 |
| Decrease in prepaid insurance | (8) | | | (8) |
| Increase in salaries payable | 7 | | | 7 |
| Increase in notes payable | 14 | | | 14 |
| Decrease in income tax payable | | | (11) | (11) |
| Amortization of discount | 0 | | | 0 |
| Net cash flows | | | | 22 |
| Investing activities: | | | | |
| Purchase of land | | | (13) | (13) |
| Purchase of S-T investments | | | 21 | 21 |
| Sale of land | 15 | | | 15 |
| Sale of equipment | 3 | | | 3 |
| Net cash flows | | | | (10) |
| Financing activities: | | | | |
| Sale of common shares | (17) | | | (17) |
| Retirement of bonds payable | | | (15) | (15) |
| Payment of cash dividends | | | (10) | (10) |
| Net cash flows | | | | (42) |
| Net increase/decrease | | | | (20) |
| Total | | 19 | 98 | |

ILLUSTRATION 21A-2
Spreadsheet Entries
for the Indirect
Method

| | | | |
|-------------------|--|-------------|----|
| Entry (1) | Net income—FOA
Retained earnings
Establishes net income as the starting amount of cash flows from operating activities, to be adjusted to a cash basis by subsequent entries. | 2 | |
| Entry (2) | Cash received from sale of land
Gain on sale of land—CFOA
Deducts the noncash gain added in determining net income, explains a portion of the change in land, and identifies a cash inflow from investing activities. | 19 | 0 |
| Entry (3) | Cash increased from sale of equipment
Increase in net equity—FOA
Buildings and equipment
Adds back the noncash loss subtracted in determining net income, explains portions of the changes in building and equipment, and identifies a cash inflow from investing activities. | 5
2
7 | 0 |
| Entry (4) | Depreciation expense—FOA
Accumulated depreciation
Adds back the noncash expense subtracted in determining net income. | 4 | 3 |
| Entry (5) | Accounts receivable
Increase in accounts receivable—FOA
Reduces net income to reflect \$50 million cash received from customers rather than \$100 million sales. | 2 | 2 |
| Entry (6) | Decrease in inventory—CFOA
Inventory
Increases net income to reflect a deduction of \$56 million cost of goods purchased rather than \$60 million cost of goods sold. | 4 | 4 |
| Entry (7) | Increase in accounts payable
Accounts payable
Increases net income to reflect a deduction of \$50 million cash paid to suppliers rather than \$56 million cost of goods purchased. | 0 | 0 |
| Entry (8) | Decrease in prepaid insurance—CFOA
Prepaid insurance
Increases net income to reflect a deduction of \$10 million cash paid for insurance rather than \$20 million insurance expense. | 3 | 3 |
| Entry (9) | Increase in salaries payable
Salaries payable
Increases net income to reflect a deduction of \$7 million cash paid to employees rather than \$10 million salaries expense. | 7 | 0 |
| Entry (10) | Amortization of discount on bonds—CFOA
Discount on bonds
Increases net income to reflect a deduction of \$3 million cash paid on bond interest rather than \$5 million bond interest expense. | 2 | 0 |
| Entry (11) | Income taxes payable
Increase in income tax payable—FOA
Reduces net income to reflect a deduction of \$11 million cash paid for income taxes rather than \$9 million income tax expense. | 0 | 0 |
| Entry (12) | Short-term investment
Cash paid for short-term investment
Explains the decrease in the short-term investment account and identifies a cash outflow from investing activities. | 12 | 12 |
| Entry (13) | Land
Cash paid for land
Explains the increase in the long-term land account and identifies a cash outflow from investing activities. | 30 | 30 |

| | | |
|--|----|----|
| Entry 14) Buildings and equipment | 20 | |
| Note payable | | 21 |
| Partially explains the change in the buildings and equipment and notes payable accounts and identifies a noncash investing and financing activity | | |
| Entry 15) Funds payable | 15 | |
| Cash | | 15 |
| Cash | | 15 |
| Partially explains the cash increase from the funds payable account and identifies a cash inflow from investing activities | | |
| Entry 16) Retained earnings | 33 | |
| Paid-in capital—excess of par | | 33 |
| Paid-in capital—excess of par | | 33 |
| Partially explains the changes in the retained earnings, common stock, and paid-in capital—excess of par accounts | | |
| Entry 17) Cash | 26 | |
| Common stock | | 26 |
| Paid-in capital—excess of par | | 26 |
| Partially explains the changes in the common stock and paid-in capital—excess of par accounts and identifies a cash inflow from financing activities | | |
| Entry 18) Retained earnings | 5 | |
| Cash | | 5 |
| Partially explains the change in the retained earnings account and identifies a cash outflow from financing activities | | |
| Entry 19) Cash | 9 | |
| Net increase in cash from statement of cash flows activities | | 9 |
| Reconciles the net increase in cash from operating, investing, and financing activities to the increase in the cash balance | | |

ILLUSTRATION 21A-2

Continued

The statement of cash flows reconciling net cash flows from operating activities by the indirect method is illustrated in Illustration 21A-3.

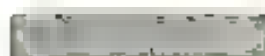
| UNITED BRANDS CORPORATION
Statement of Cash Flows
For Year Ended December 31, 2006
(in millions) | | |
|---|------|------|
| Cash Flows from Operating Activities | | |
| Net income | \$12 | |
| Adjustments for noncash effects | | |
| Gain on sale of land | (8) | |
| Depreciation expense | 3 | |
| Loss on sale of equipment | 1 | |
| Increase in accounts receivable | 2 | |
| Decrease in inventory | 4 | |
| Decrease in prepaid insurance | 3 | |
| Increase in accounts payable | 6 | |
| Increase in notes payable | 2 | |
| Decrease in income tax payable | (1) | |
| Amortization of discount on bonds | 2 | |
| Net cash flows from operating activities | | \$22 |
| Cash Flows from Investing Activities | | |
| Purchase of land | (3) | |
| Purchase of cash equivalents | (2) | |
| Sale of land | 18 | |
| Sale of equipment | 5 | |
| Net cash from investing activities | | (19) |

ILLUSTRATION 21A-3Statement of Cash
Flows—Indirect
Method

All parts of the statement of cash flows are prepared by adjusting the net income to the net cash flow by the indirect method.

ILLUSTRATION 21A-3
Concluded

| Cash Flows from Financing Activities | |
|--|-----------|
| Sale of common shares | 24 |
| Retirement of bonds payable | (17) |
| Payment of cash dividends | 5 |
| Net cash flows from financing activities | 6 |
| Net increase/decrease | 9 |
| Cash balance, January 1 | 60 |
| Cash balance, December 31 | <u>69</u> |
| Net cash from Investing and Financing Activities | |
| Acquire \$500,000 of equipment | |
| or \$200,000 5-year lease | \$20 |



For example, the balance sheet account for cash is shown below. The cash T-account is used to record all cash transactions during the year.

THE T-ACCOUNT METHOD OF PREPARING THE STATEMENT OF CASH FLOWS

This chapter demonstrates the use of a spreadsheet to prepare the statement of cash flows. A second systematic approach to the preparation of the statement is referred to as the T-account method. The two methods are identical in concept. Both approaches reconstruct the transactions that caused changes in each account balance during the year, simultaneously identifying the operating, investing, and financing activities to be reported on the statement of cash flows. The form of the two methods differs only by whether the entries for those transactions are recorded on a spreadsheet or in T-accounts. In both cases, entries are recorded until the net change in each account balance has been explained.

Some accountants feel that the T-account method is less time-consuming than preparing a spreadsheet but accomplishes precisely the same goal. Since both methods are simply analytical techniques to assist in statement preparation, the choice is a matter of personal preference. The following five steps outline the T-account method:

1. Draw T-accounts for each income statement and balance sheet account.
2. The T-account for cash should be drawn considerably larger than other T-accounts because more space is required to accommodate the numerous debits and credits to cash. Also, the cash T-account will serve the same purpose as the statement of cash flows section of the spreadsheet in that the formal statement of cash flows is developed from the cash flows reported there. Therefore, it is convenient to prepare the cash T-account with headings for "Operating Activities," "Investing Activities," and "Financing Activities" before entries are recorded.
3. Enter each account's net change on the appropriate side (debit or credit) of the uppermost portion of each T-account. These changes will serve as individual check figures for determining whether the increase or decrease in each account balance has been explained. These first three steps establish the basic work form for the T-account method.
4. Reconstruct the transactions that caused changes in each account balance during the year and record the entries for those transactions directly in the T-accounts. Again using UBC as an example, the entries we record in the T-accounts are exactly the same as the spreadsheet entries we created in the chapter when using the spreadsheet method. The analysis we used in creating those spreadsheet entries is equally applicable to the T-account method. For that reason, that analysis is not repeated here. The complete T-account work form for UBC is presented below. Account balance changes are provided by Illustration 21-1.

BALANCE SHEET ACCOUNTS
Cash statement of cash flows

| | | | | | |
|------------------------------|-----|----|-----|------|-----------------------------------|
| Operating Activities: | | | | | |
| From customers | (1) | 98 | (5) | (4) | To suppliers of goods |
| From investment revenue | (2) | 3 | 1 | (8) | To employees |
| | | | 3 | (7) | For interest |
| | | | | 5 | For insurance |
| | | | | 1 | For income taxes |
| Investing Activities: | | | | | |
| Sale of investments | (3) | 0 | | (12) | Purchase of short-term investment |
| Sale of equipment | (9) | 5 | | 13 | Purchase of land |
| Financing Activities: | | | | | |
| Sale of common stock | 7 | 20 | | 5 | Retirement of bonds payable |
| | | | | (18) | Payment of cash dividends |

| | | | |
|--------------------------------------|------|---------------------------------|------|
| Accounts Receivable | | Short-Term Investments | |
| (1) | 2 | (2) | 12 |
| | | | |
| Inventory | | Prepaid Insurance | |
| | 4 | | 1 |
| | 4 | | 1 |
| | (4) | | (8) |
| | | | (13) |
| Buildings and Equipment | | Accumulated Depreciation | |
| (14) | 20 | (9) | 7 |
| | 14 | | 1 |
| | | | (5) |
| Salaries Payable | | Income Tax Payable | |
| | 2 | | 2 |
| | 2 | | 2 |
| | (3) | | (10) |
| Bonds Payable | | Discount on Bonds | |
| (15) | 15 | | 2 |
| | | | (7) |
| Common Stock | | Retained Earnings | |
| | 10 | | 4 |
| | 20 | | 13 |
| | (16) | | 5 |
| | (17) | | 2 |
| | | | (11) |
| Paid-in Capital—excess of par | | Retained Earnings | |
| | 3 | | 13 |
| | 6 | | 5 |
| | (16) | | 2 |
| | (17) | | (11) |

X Noncash Investing and Financing Activity

INCOME STATEMENT ACCOUNTS

| | | |
|--|--|---|
| Sales Revenue
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">100
100</div> <div style="text-align: right;">(1)</div> | Investment Revenue
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">3
3</div> <div style="text-align: right;">(2)</div> | Gain on Sale of Land
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">8
8</div> <div style="text-align: right;">(3)</div> |
| Cost of Goods Sold
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">60
60</div> <div style="text-align: right;">(4)</div> | Salaries Expense
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">13
13</div> <div style="text-align: right;">(5)</div> | Depreciation Expense
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">5
5</div> <div style="text-align: right;">(6)</div> |
| Interest Expense
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">5
5</div> <div style="text-align: right;">(7)</div> | Insurance Expense
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">7
7</div> <div style="text-align: right;">(8)</div> | Loss on Sale of Equipment
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">2
2</div> <div style="text-align: right;">(9)</div> |
| Income Tax Expense
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">9
9</div> <div style="text-align: right;">(10)</div> | Net Income
(Income Summary)
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; background-color: white;"></div> </div> <div style="text-align: center; margin-top: 5px;">12
12</div> <div style="text-align: right;">(11)</div> | |

3. After all account balances have been explained by T-account entries, prepare the statement of cash flows from the cash T-account, being careful also to report noncash investing and financing activities. The statement of cash flows for BC appears in Graphic 2-2 on page 1192.

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q 21-1** Effects of all cash flows affect the balances of various accounts reported on the balance sheet. Also, the activities that cause some of these cash flows are reported on the income statement. What, then, is the need for an additional financial statement that reports cash flows?
- Q 21-2** The statement of cash flows has been a required financial statement only since 1989. Is cash flow reporting a totally new concept? Explain.
- Q 21-3** Is an investment in Treasury bills always classified as a cash equivalent? Explain.
- Q 21-4** Transactions that involve merely purchases or sales of cash equivalents generally are not reported on a statement of cash flows. Describe an exception to this generalization. What is the essential characteristic of the transaction that qualifies as an exception?
- Q 21-5** What are the differences between cash flows from operating activities and the elements of an income statement?
- Q 21-6** Do cash flows from operating activities report all the elements of the income statement on a cash basis? Explain.
- Q 21-7** Investing activities include the acquisition and disposition of assets. Provide four specific examples. How are they exceptions?
- Q 21-8** The sale of stock and the sale of bonds are reported as financing activities. Are payments of dividends to shareholders and payments of interest to bondholders also reported as financing activities? Explain.
- Q 21-9** Does the statement of cash flows report only transactions that cause an increase or a decrease in cash? Explain.
- Q 21-10** How would the acquisition of a building be reported on a statement of cash flows if purchased by issuing a mortgage note payable in addition to a significant cash down payment?
- Q 21-11** Perhaps the most noteworthy item reported on an income statement is net income—the activities by which revenues exceed expenses. The least noteworthy item reported on a statement of cash flows is not the amount of net cash flows. Explain.
- Q 21-12** What is the purpose of the “changes” column of a spreadsheet in preparing a statement of cash flows?
- Q 21-13** Given sales revenue of \$200,000, how can it be determined whether or not \$200,000 cash was received from customers?

- Q 2 74 When an asset is sold at a gain, why is the gain not reported as a cash inflow from operating activities?
- Q 3 75 Are ordinary losses and extraordinary losses treated alike in preparing a statement of cash flows? Explain.
- Q 4 76 When determining the amount of cash flow for operating losses, what would be indicated by an increase in the deferred income tax liability account?
- Q 5 77 When using the indirect method of determining net cash flows from operating activities, how is bad debt expense reported? Why? What other accounts are reported in a like manner?
- Q 6 78 When using the indirect method of determining net cash flows from operating activities, how are revenues and expenses reported on the statement of cash flows if their cash effects are identical to the amounts reported in the income statement?
- Q 7 79 Why does the FASB recommend the direct method over the indirect method?
- Q 8 80 Explain the same account that is reported on a statement of cash flows prepared by the direct method and by the indirect method.

BRIEF EXERCISES

- BE 21-1**
Determine net cash received from customers.
April Wind Products' net sales were \$55 million. What is the amount of cash Horizon reported from customers during the reporting period if its sales were \$33 million? Prepare a summary entry that represents the net effect of the selling and collections activities during the reporting period.
- BE 21-2**
Determine net cash received from customers.
April Wind Products' accounts receivable increased during the year by \$4 million. Its bad debt expense was \$2 million and its sales were \$55 million. What is the amount of cash April Wind Products received from customers during the reporting period if its sales were \$54 million? Prepare a summary entry that represents the net effect of the selling and collection activities during the reporting period.
- BE 21-3**
Determine cash paid to suppliers.
Larkin Lamps' inventory increased during the year by \$6 million. Its accounts payable decreased by \$3 million during the reporting period. What is the amount of cash Larkin paid to suppliers of merchandise during the reporting period if its cost of goods sold was \$25 million? Prepare a summary entry that represents the net effect of the merchandise purchase and payment activities during the reporting period.
- BE 21-4**
Determine cash paid to employees.
Merrillville Baby Products' salaries expense was \$17 million. What is the amount of cash Sherman paid to employees during the reporting period if its salaries payable increased by \$1 million? Prepare a summary entry that represents the net effect of salaries expense incurred and paid during the reporting period.
- BE 21-5**
Determine net cash from operations.
Agree Technology Inc. issued 415 bonds, dated January 1 with a face amount of \$400 million on July 1, at a price of \$100 million. For bonds of equal risk and maturity, the market yield is 10%. Interest is paid semiannually on June 30 and December 31. Prepare the journal entry to record interest at December 31. What would be the gross proceeds from the bonds that Agree would report on its statement of cash flows if it uses the indirect method?
- BE 21-6**
Determine net cash from operations.
Refer to the situation described in BE 21-5. What would be the amount(s) related to the bonds that Agree would report on its statement of cash flows for the year ended December 31, 2006, if it uses the indirect method?
- BE 21-7**
Determine net cash from operations.
On January 1, 2006, the Merit Group issued to its bank a \$4 million, five-year installment note to be paid in five equal payments at the end of each year. Installment payments of \$1.0 million annually include interest at the rate of 7%. What would be the amount(s) related to the note that Merit would report on its statement of cash flows for the year ended December 31, 2006?
- BE 21-8**
Determine net cash from operations.
On July 15, 2006, M. W. Morgan Corporation sold land for \$35 million that it had purchased in 2001 for \$22 million. What would be the amount(s) related to the sale that Morgan would report on its statement of cash flows if it uses the direct method? the indirect method?
- BE 21-9**
Determine net cash from operations.
Conner Containers sold marketable securities, land, and common stock for \$30 million, \$5 million, and \$40 million, respectively. Conner also purchased treasury stock, equipment, and a patent for \$21 million, \$23 million, and \$12 million, respectively. What amount should Conner report as net cash from investing activities?

1100 SECTION 4

Additional Financial Reporting Issues

PE 21 C
Financing activities

Refer to the situation described in PE 21-B. What amount should Carter report as net cash from financing activities?

LO6

BE 21-1
Indirect method

Shoen Awards reported net income of \$40 million. Included in that number were depreciation expense of \$7 million and a loss on the sale of equipment of \$2 million. Records reveal increases in accounts receivable, accounts payable, and inventory of \$1 million, \$4 million, and \$3 million, respectively. What were Shoen's cash flows from operating activities?

BE 21-2
Indirect method

Winter Armes reported net income of \$60 million. Included in that number were trademark amortization expense of \$5 million and a gain on the sale of land of \$1 million. Records reveal changes in accounts receivable, accounts payable, and inventory of \$2 million, \$1 million, and \$3 million, respectively. What were Winter's cash flows from operating activities?

LO4

EXERCISES

An alternate exercise and problem set is available on the text website: www.mhhe.com/splacaddic

PE 21-1
Classification of cash flows

Each item below are events or transactions that either produce either an increase or a decrease in cash. Indicate by letter whether the cash effect of each transaction is reported on a statement of cash flows as an operating (O), investing (I), or financing (F) activity.

LO3 through LO6

Transactions

1. Sale of common stock
2. Sale of land
3. Purchase of treasury stock
4. Merchandise sale
5. Issuance of a long-term note payable
6. Purchase of merchandise
7. Repayment of note payable
8. Employee salaries
9. Sale of equipment at a gain
10. Issuance of bonds
11. Acquisition of land of another corporation
12. Payment of semiannual interest on bonds payable
13. Payment of a cash dividend
14. Purchase of a building
15. Collection of promissory note receivable (net of discount)
16. Loan to another firm
17. Retirement of common stock
18. Airline losses
19. Issuance of a short-term note payable
20. Sale of a copyright

PE 21-2
Determine cash paid to suppliers of merchandise

Shown below in T-account format are the beginning and ending balances (\$ in millions) of both Inventory and accounts payable.

LO1

| | Inventory | |
|-------------------|-----------|--|
| Beginning balance | 90 | |
| Ending balance | 93 | |

| | Accounts Payable | |
|--|------------------|-------------------|
| | 15 | Beginning balance |
| | 16 | Ending balance |

Required

1. Use a T-account analysis to determine the amount of cash paid to suppliers of merchandise during the reporting period if cost of goods sold was \$100 million.
2. Prepare a summary entry that represents the net effect of merchandise purchases during the reporting period.

Determine cash received from customers

• Q1

Determine the amount of cash received from customers for each of the six independent situations below. All dollars are in millions.

| Situation | Sales Revenue | Accounts Receivable Increase (Decrease) | Bad Debt Expense | Allowance for Uncollectible Accounts Increase (Decrease) | Cash Received from Customers |
|-----------|---------------|---|------------------|--|------------------------------|
| 1 | 100 | 0 | 0 | 0 | ? |
| 2 | 100 | 5 | 0 | 0 | ? |
| 3 | 100 | 50 | 0 | 0 | ? |
| 4 | 100 | 5 | 2 | 2 | ? |
| 5 | 100 | 90 | 2 | 2 | ? |
| 6 | 100 | 5 | 5 | (7) | ? |

• Q2

Summarize entries for cash received from customers

For each of the four independent situations below, prepare journal entries that summarize the selling and collection activities for the reporting period in order to determine the amount of cash received from customers and to explain the change in each account shown. All dollars are in millions.

| Situation | Sales Revenue | Accounts Receivable Increase (Decrease) | Bad Debt Expense | Allowance for Uncollectible Accounts Increase (Decrease) | Cash Received from Customers |
|-----------|---------------|---|------------------|--|------------------------------|
| 1 | 200 | 0 | 0 | 0 | ? |
| 2 | 200 | 10 | 0 | 0 | ? |
| 3 | 200 | 0 | 4 | 4 | ? |
| 4 | 200 | 10 | 6 | (2) | ? |

• Q3

Determine cash paid to suppliers of merchandise

Determine the amount of cash paid to suppliers of merchandise for each of the nine independent situations below. All dollars are in millions.

| Situation | Cost of Goods Sold | Inventory Increase (Decrease) | Accounts Payable Increase (Decrease) | Cash Paid to Suppliers |
|-----------|--------------------|-------------------------------|--------------------------------------|------------------------|
| 1 | 100 | 0 | 0 | ? |
| 2 | 100 | 0 | 0 | ? |
| 3 | 100 | 30 | 0 | ? |
| 4 | 100 | 0 | 0 | ? |
| 5 | 100 | 0 | (7) | ? |
| 6 | 100 | 2 | 7 | ? |
| 7 | 100 | 3 | (7) | ? |
| 8 | 100 | (7) | (7) | ? |
| 9 | 100 | 30 | 7 | ? |

• Q4

Summarize entries for cash paid to suppliers of merchandise

For each of the five independent situations below, prepare a journal entry that summarizes the purchase and payment activities for the reporting period in determining the amount of cash paid to suppliers and explain the change in each account shown. All dollars are in millions.

| Situation | Cost of Goods Sold | Inventory Increase (Decrease) | Accounts Payable Increase (Decrease) | Cash Paid to Suppliers |
|-----------|--------------------|-------------------------------|--------------------------------------|------------------------|
| 1 | 200 | 0 | 0 | ? |
| 2 | 200 | 0 | 0 | ? |
| 3 | 200 | 0 | 10 | ? |
| 4 | 200 | 0 | 4 | ? |
| 5 | 200 | 0 | 4 | ? |

• Q5

Determine cash paid for bond interest

Determine the amount of cash paid for bond interest for each of the six independent situations below. All dollars are in millions.

| Situation | Bond Interest Expense | Bond Interest Payable Increase (Decrease) | Unamortized Discount Increase (Decrease) | Cash Paid for Interest |
|-----------|-----------------------|---|--|------------------------|
| 1 | 10 | 0 | 0 | ? |
| 2 | 10 | 2 | 0 | ? |
| 3 | 10 | 7 | 0 | ? |
| 4 | 10 | 0 | (7) | ? |
| 5 | 10 | 2 | (5) | ? |
| 6 | 10 | (2) | (3) | ? |

• Q6

Determine cash paid for bond interest

For each of the four independent situations, prepare a single journal entry that summarizes the recording and payment of interest in order to determine the amount of cash paid for bond interest and explain the change in any of the accounts shown. All dollars are in millions.

• Q7

| Situation | Bond Interest Expense | Bond Interest Payable | | Unamortized Discount Increase (Decrease) | Cash Paid for Interest |
|-----------|-----------------------|-----------------------|----------|--|------------------------|
| | | Increase | Decrease | | |
| 1 | 20 | 0 | | 0 | ? |
| 2 | 20 | 4 | | 0 | ? |
| 3 | 20 | 0 | | (6) | ? |
| 4 | 20 | (4) | | (6) | ? |

E 21-9

Debit and credit paid for income taxes

• 100%

Form the five independent situations below, prepare a single journal entry that summarizes the recording and payment of income taxes in order to determine the amount of cash paid for income taxes and explain the change, if any, in each of the accounts shown. All amounts are in millions.

| Situation | Income Tax Expense | Income Tax Payable | | Deferred Tax Liability Increase (Decrease) | Cash Paid for Taxes |
|-----------|--------------------|--------------------|----------|--|---------------------|
| | | Increase | Decrease | | |
| 1 | 10 | 0 | | 0 | ? |
| 2 | 10 | 5 | | 0 | ? |
| 3 | 10 | (3) | | 0 | ? |
| 4 | 10 | 0 | | 2 | ? |
| 5 | 10 | 0 | | (2) | ? |
| 6 | 10 | 2 | | 2 | ? |
| 7 | 10 | 2 | | (2) | ? |
| 8 | 10 | (3) | | (2) | ? |
| 9 | 10 | (3) | | 2 | ? |

E 21-10

Summary entries for cash paid for income taxes

• 100%

For each of the five independent situations below, prepare a single journal entry that summarizes the recording and payment of income taxes in order to determine the amount of cash paid for income taxes and explain the change, if any, in each of the accounts shown. All amounts are in millions.

| Situation | Income Tax Expense | Income Tax Payable | | Deferred Tax Liability Increase (Decrease) | Cash Paid for Taxes |
|-----------|--------------------|--------------------|----------|--|---------------------|
| | | Increase | Decrease | | |
| 1 | 10 | 0 | | 0 | ? |
| 2 | 10 | 3 | | 0 | ? |
| 3 | 10 | 0 | | (2) | ? |
| 4 | 10 | 3 | | 2 | ? |
| 5 | 10 | (2) | | (2) | ? |

E 21-11

Balance sheet and cash flow effects

• 100%

Medi Solutions, Inc. issued 10% bonds, dated January 1, 2006, with a face amount of \$640 million on January 1, 2006. The bonds mature in 10 years. Interest is paid semiannually on January 1 and July 1. The market rate of interest was 8% on the date of issuance. The following information is available:

| | | |
|--------------------------------|-------------|-------------|
| January 1, 2006 | | |
| Cash (price) | 566,589,840 | |
| Discount on bonds (difference) | 73,410,160 | |
| Bonds payable (face amount) | | 640,000,000 |

Required

What would be the amounts related to the bonds that Medi would report in its statement of cash flows for the year ended December 31, 2006?

E 21-12

Statement of cash flow effects

• 100%

National Fund Services, Inc. borrowed \$4 million from its local bank on January 1, 2006, and issued a 4-year installment note to be paid in four equal payments at the end of each year. The payments include interest at the rate of 10%. Installment payments are \$1,214,880 annually.

Required

What would be the amounts related to the note that National would report in its statement of cash flows for the year ended December 31, 2006?

E 21-13

Identifying cash flows from investing activities and financing activities

• 100%

In preparation for developing its statement of cash flows for the year ended December 31, 2006, RapidPac, Inc. collected the following information:

| | (\$ in millions) |
|---|------------------|
| Fair value of shares issued in stock dividend | 7.65 |
| Payment on the long-term debt | 102 |
| Proceeds from the sale of treasury stock (cost: \$17 million) | 29 |
| Proceeds from sale of land | 12 |
| Purchase of Microsoft common stock | 160 |
| Distribution of cash dividends | 44 |
| Distribution of cash dividends declared in 2005 | 60 |

Required

- In RapidPal's statement of cash flows, what were net cash inflows (or outflows) from investing activities for 2005?
- In RapidPal's statement of cash flows, what were net cash inflows (or outflows) from financing activities for 2005?

E 17-14
Identifying cash flows from investing activities

LO 1, 2, 3

In preparation for developing its statement of cash flows for the year ended December 31, 2005, Millennium Solutions Inc. collected the following information (in millions):

| | |
|---|-------|
| Payment for the early termination of long-term contracts (cash value: \$50 million) | \$ 54 |
| Retirement of common shares | 122 |
| Loss on sale of equipment | 2 |
| Proceeds from sale of equipment | 8 |
| Accrual of interest on debt | 7 |
| Purchase of marketable securities (not a cash equivalent) | 1 |
| Purchase of marketable securities (not a cash equivalent) | 1 |
| Cash payment for interest on debt | 1 |
| Collection of note receivable with interest (principal amount, \$15) | 13 |
| Declaration of cash dividends | 33 |
| Payment of cash dividends declared in 2005 | 20 |

Required

- In Millennium's statement of cash flows, what were net cash inflows (or outflows) from investing activities for 2005?
- In Millennium's statement of cash flows, what were net cash inflows (or outflows) from financing activities for 2005?

E 17-15
Capital lease: lessee
Statement of cash flows effect

LO 1, 2, 3, 4, 5

Wilson leased \$1 million leased a commercial food processor on September 30, 2006. The five-year lease agreement calls for Wilson to make quarterly lease payments of \$95,774, payable each September 30, March 31, June 30, with the final payment at September 30, 2011. Wilson's monthly interest rate is 1.25%. Wilson records depreciation on a straight-line basis at the end of each fiscal year. Wilson can exhibit the lease as follows.

| | | |
|-------------------------------------|-----------|--------|
| September 30, 2006 | | |
| Leased equipment (calculated below) | 1,000,000 | 0.00 |
| Lease payable | 195,774 | 25.774 |
| Cash (rental payment) | | |

Calculation of the present value of lease payments

$$\$95,774 \times \$42,880 = \$4,080,000$$

0.000000

0.000000

Required

What would be the present amounts related to the lease that Wilson would report in its statement of cash flows for the year ended December 31, 2006?

E 17-16
Equity method
Investment: statement of cash flow effects

LO 1, 2, 3

In January 2006, Beltek Enterprises bought 30% of the outstanding common stock of Wolfe Construction Company for \$600 million cash. Wolfe's net income for the year ended December 31, 2006, was \$300 million. During 2006, Wolfe declared and paid cash dividends of \$60 million. Beltek recorded the investment as follows:

| | | |
|--|-----|------|
| Purchase | | |
| Investment in Wolfe Construction shares | 600 | 0.00 |
| Cash | | |
| Net income | | |
| Investment in Wolfe Construction shares (30% of \$300 million) | 60 | 0.00 |
| Investment revenue | | |
| Dividends | | |
| Investment in Wolfe Construction shares (30% of \$60 million) | 18 | 0.00 |
| Cash | | |

Required

What would be the present amounts related to the investment that Beltek would report in its statement of cash flows for the year ended December 31, 2006?

Additional Financial Reporting Issues

17-18
Indirect method
Reconciliation of net
income to net cash
flows from operating
activities

• 103

21-22
Spreadsheet entries
from statement of
retained earnings

• through L06

The accounting records of EZ Company include the data below. Prepare a reconciliation of net income to net cash flows from operating activities.

| | |
|------------------------------------|----------|
| Net income | \$50,000 |
| Depreciation expense | 7,000 |
| Increase in inventory | 400 |
| Decrease in salaries payable | 600 |
| Decrease in accounts receivable | 3,000 |
| Amortization of patent | 500 |
| Accrualization of premium on bonds | 1,000 |
| Increase in accounts payable | 4,000 |
| Cash dividends | 12,000 |

The statement of retained earnings of Gary Larson Publishers is presented below.

GARY LARSON PUBLISHERS
Statement of Retained Earnings
For the Year Ended December 31, 2006
(\$ in millions)

| | |
|---|--------------|
| Retained earnings, January 1 | \$280 |
| Add: Net income | 75 |
| Decrease: Cash dividend | (25) |
| Stock dividend (1 million shares of \$1 par common stock) | (10) |
| Property dividend (1 million shares of common preferred stock held as treasury stock) | 2 |
| Sale of treasury stock (cost \$50 million) | (10) |
| Retained earnings, December 31 | \$212 |

Required:

For the data provided that affected Larson's retained earnings, reconstruct the journal entries for the transactions that affected retained earnings and that can be used to determine cash flows to be reported in a statement of cash flows. Also indicate any investing and financing activities you identify from this analysis that should be reported in the statement of cash flows.

The following schedule relates the income statement with cash flows from operating activities determined with the direct and indirect methods at the firm illustrated by Example 17-18 in the chapter. The amounts for income statement elements are in millions.

19-20
Relationship between
the income statement
and cash flows from
operating activities
Indirect method and
direct method

• L03 L04

Balance Sheet

| | | Cash Flows from Operating Activities | | | |
|----------------------|------------|---|------------|---|-------------|
| | | Indirect Method | | Direct Method | |
| | | Net Income | \$7 | | |
| | | Adjustments: | | | |
| Sales | \$ | Decrease in accounts receivable | 4 | Cash received from customers | \$612 |
| Loss of goods sold | | Increase in inventory | 4 | | |
| | | Decrease in accounts payable | (10) | Cash paid to suppliers | (202) |
| Salaries expense | 2 | Increase in salaries payable | 2 | Cash paid to employees | (50) |
| Depreciation expense | 7 | Depreciation expense | 8 | Net reported cash effect | |
| Insurance expense | | Decrease in prepaid insurance | 3 | Cash paid for insurance | (79) |
| Loss on sale of land | | Loss on sale of land | 2 | Net reported cash effect | |
| Income tax expense | | Increase in income tax payable | 2 | Cash paid for income taxes | (40) |
| Net income | \$7 | Net cash flows from operating activities | \$7 | Net cash flows from operating activities | \$56 |

Required:

Adjusted the financing accounts and prepare the income statement.

23-24
Reconciliation of net
cash flows from
operating activities to
net income

• L03 L04

The income statement and the cash flows from operating activities section of the statement of cash flows are to appear below for the firm of Example 17-18. The data are based on the following journal entries. Assume that no other activity occurred during the period.

SYNTRIC COMPANY
Income Statement
For the Year Ended December 31, 2006
(In millions)

| | | |
|---|----|-------|
| Sales | | \$134 |
| Cost of goods sold | | (88) |
| Gross margin | | 46 |
| Operating expenses | 34 | |
| Depreciation expense | 22 | |
| Amortization expense | | |
| Impairment expense | 5 | |
| Goodwill impairment | | |
| Gain on sale of equipment | | 25 |
| Gain on sale of land | | (5) |
| Income tax expense | | (20) |
| Net income | | \$16 |
| Cash Flows from Operating Activities | | |
| Cash received from customers | | \$258 |
| Cash paid to suppliers | | (75) |
| Cash paid to employees | | (10) |
| Cash paid for depreciation | | (22) |
| Cash paid for insurance | | (10) |
| Cash paid for income tax | | (14) |
| Net cash flows from operating activities | | \$17 |

Requirement

Prepare a schedule of net income to net cash flows from operating activities.

E 21-2
Cash flows from operating activities (indirect method; derived from an income statement and cash flows from operating activities indirect method)

• 100 LOD

The income statement and a schedule of net income to net cash flows from operating activities to net income are provided below (\$ in 000s) for Peach Computers.

| PEACH COMPUTERS | | Reconciliation of Net Income | |
|--------------------------------------|-----------|---|-------------|
| Income Statement | | to Net Cash Flows from Operating Activities | |
| For the Year Ended December 31, 2006 | | | |
| Sales | \$305 | Net income | \$32 |
| Cost of goods sold | (181) | | |
| Gross margin | 124 | Adjustments for Noncash Effects | |
| Amortization expense | 9 | Depreciation expense | 5 |
| Impairment expense | 0 | Gain on sale of land | (4) |
| Depreciation expense | 10 | Decrease in accounts receivable | (3) |
| Gain on sale of land | (10) | Decrease in inventory | (8) |
| Income before tax | (14) | Decrease in accounts payable | 5 |
| Income tax expense | (2) | Increase in salaries payable | 9 |
| Net income | 12 | Decrease in prepaid insurance | (2) |
| | | Increase in income taxes payable | (2) |
| | | Net cash flows from operating activities | \$57 |

Requirement

Adjust each of the following amounts for Peach Computers.

- Cash received from customers during the reporting period
 - Cash paid to suppliers of goods during the reporting period
 - Cash paid to employees during the reporting period
 - Cash paid for depreciation during the reporting period
 - Cash paid for income taxes during the reporting period
2. Prepare the cash flows from operating activities section of the statement of cash flows (direct method).

E 21-2c
Indirect method reconciliation of net income to net cash flows from operating activities

• 100

The accounting records of Buddeur Company provided the data below. Prepare a reconciliation of net income to net cash flows from operating activities.

| | |
|-------------------------------------|---------|
| Net income | \$5,000 |
| Depreciation expense | 4,000 |
| Increase in salaries payable | 500 |
| Decrease in accounts receivable | 2,000 |
| Increase in inventory | 2,300 |
| Amortization of patent | 300 |
| Reduction in the cost of goods sold | 200 |

E 21-23

Cash flows from operating activities (direct method)—includes loss on sale of cash equivalents and extraordinary loss

• 10 min

Portions of the financial statements for Myriad Products are provided below.

MYRIAD PRODUCTS COMPANY
Income Statement
For the Year Ended December 31, 2006
(\$ in millions)

| | | |
|--|----------|--------------|
| Sales | | \$600 |
| Cost of goods sold | | <u>250</u> |
| Gross margin | | 350 |
| Salaries expense | \$110 | |
| Depreciation expense | 40 | |
| Patent amortization expense | 5 | |
| Interest expense | 20 | |
| Loss on sale of cash equivalents | <u>3</u> | |
| Income before taxes and extraordinary loss | | 182 |
| Income tax expense | | <u>19</u> |
| Income before extraordinary loss | | 163 |
| Extraordinary loss (earthquake) | 10 | |
| Less: Tax savings | 5 | |
| Net income | | <u>\$ 68</u> |

MYRIAD PRODUCTS COMPANY
Selected Accounts from Comparative Balance Sheets
December 31, 2006 and 2005
(\$ in millions)

| | Year | | |
|----------------------|-------|-------|--------|
| | 2006 | 2005 | Change |
| Cash | \$ 92 | \$100 | \$ 8 |
| Accounts receivable | 210 | 212 | 2 |
| Inventory | 640 | 450 | 190 |
| Accounts payable | 40 | 134 | 94 |
| Salaries payable | 20 | 26 | 6 |
| Interest payable | 25 | 20 | 5 |
| Income taxes payable | 5 | 10 | 5 |

Required:

Prepare the cash flows from operating activities section of the statement of cash flows for Myriad Products Company using the *direct method*.

Refer to the data provided in the previous section for Myriad Products Company.

Required:

Prepare the cash flows from operating activities section of the statement of cash flows for Myriad Products Company using the *indirect method*.

E 21-24

Cash flows from operating activities (indirect method)—includes loss on sale of cash equivalents and extraordinary loss

• 10 min

E 21-25

Cash flows from operating activities (indirect method)—includes loss on sale of cash equivalents and extraordinary gain

• 10 min

Portions of the financial statements for Clear Transmissions Company are provided below.

CLEAR TRANSMISSIONS COMPANY
Income Statement
For the Year Ended December 31, 2006 (\$ in millions)

| | | |
|--|----------|------------|
| Sales | | \$ 370 |
| Cost of goods sold | | <u>110</u> |
| Gross margin | | 260 |
| Salaries expense | \$220 | |
| Depreciation expense | 40 | |
| Patent amortization expense | 10 | |
| Interest expense | 40 | |
| Loss on sale of cash equivalents | <u>7</u> | |
| Income before taxes and extraordinary gain | | 143 |
| Income tax expense | | <u>34</u> |

| | | |
|---|----|--------|
| Income tax expense | | \$ 80 |
| Extraordinary gain (extraordinary loss) | | 80 |
| Extraordinary gain (extraordinary loss) | 20 | |
| Net income | | \$ 100 |

CLARK TRANSPORTATION COMPANY
Selected Accounts from Comparative Balance Sheets
December 31, 2006 and 2005 (\$ in 000)

| | Year | | |
|----------------------|-------|-------|--------|
| | 2006 | 2005 | Change |
| Accounts receivable | \$100 | \$100 | \$ 0 |
| Prepaid expenses | 20 | 20 | 0 |
| Accounts payable | 10 | 10 | 0 |
| Salaries payable | 20 | 20 | 0 |
| Interest payable | 20 | 20 | 0 |
| Income taxes payable | 10 | 10 | 0 |

Required

Prepare the cash flows from operating activities section of the statement of cash flows for Clark Transportation Company using the direct method.

Key to the exercise: (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z) (aa) (ab) (ac) (ad) (ae) (af) (ag) (ah) (ai) (aj) (ak) (al) (am) (an) (ao) (ap) (aq) (ar) (as) (at) (au) (av) (aw) (ax) (ay) (az) (ba) (bb) (bc) (bd) (be) (bf) (bg) (bh) (bi) (bj) (bk) (bl) (bm) (bn) (bo) (bp) (bq) (br) (bs) (bt) (bu) (bv) (bw) (bx) (by) (bz) (ca) (cb) (cc) (cd) (ce) (cf) (cg) (ch) (ci) (cj) (ck) (cl) (cm) (cn) (co) (cp) (cq) (cr) (cs) (ct) (cu) (cv) (cw) (cx) (cy) (cz) (da) (db) (dc) (dd) (de) (df) (dg) (dh) (di) (dj) (dk) (dl) (dm) (dn) (do) (dp) (dq) (dr) (ds) (dt) (du) (dv) (dw) (dx) (dy) (dz) (ea) (eb) (ec) (ed) (ee) (ef) (eg) (eh) (ei) (ej) (ek) (el) (em) (en) (eo) (ep) (eq) (er) (es) (et) (eu) (ev) (ew) (ex) (ey) (ez) (fa) (fb) (fc) (fd) (fe) (ff) (fg) (fh) (fi) (fj) (fk) (fl) (fm) (fn) (fo) (fp) (fq) (fr) (fs) (ft) (fu) (fv) (fw) (fx) (fy) (fz) (ga) (gb) (gc) (gd) (ge) (gf) (gg) (gh) (gi) (gj) (gk) (gl) (gm) (gn) (go) (gp) (gq) (gr) (gs) (gt) (gu) (gv) (gw) (gx) (gy) (gz) (ha) (hb) (hc) (hd) (he) (hf) (hg) (hh) (hi) (hj) (hk) (hl) (hm) (hn) (ho) (hp) (hq) (hr) (hs) (ht) (hu) (hv) (hw) (hx) (hy) (hz) (ia) (ib) (ic) (id) (ie) (if) (ig) (ih) (ii) (ij) (ik) (il) (im) (in) (io) (ip) (iq) (ir) (is) (it) (iu) (iv) (iw) (ix) (iy) (iz) (ja) (jb) (jc) (jd) (je) (jf) (jg) (jh) (ji) (jj) (jk) (jl) (jm) (jn) (jo) (jp) (jq) (jr) (js) (jt) (ju) (jv) (jw) (jx) (jy) (jz) (ka) (kb) (kc) (kd) (ke) (kf) (kg) (kh) (ki) (kj) (kk) (kl) (km) (kn) (ko) (kp) (kq) (kr) (ks) (kt) (ku) (kv) (kw) (kx) (ky) (kz) (la) (lb) (lc) (ld) (le) (lf) (lg) (lh) (li) (lj) (lk) (ll) (lm) (ln) (lo) (lp) (lq) (lr) (ls) (lt) (lu) (lv) (lw) (lx) (ly) (lz) (ma) (mb) (mc) (md) (me) (mf) (mg) (mh) (mi) (mj) (mk) (ml) (mm) (mn) (mo) (mp) (mq) (mr) (ms) (mt) (mu) (mv) (mw) (mx) (my) (mz) (na) (nb) (nc) (nd) (ne) (nf) (ng) (nh) (ni) (nj) (nk) (nl) (nm) (nn) (no) (np) (nq) (nr) (ns) (nt) (nu) (nv) (nw) (nx) (ny) (nz) (oa) (ob) (oc) (od) (oe) (of) (og) (oh) (oi) (oj) (ok) (ol) (om) (on) (oo) (op) (oq) (or) (os) (ot) (ou) (ov) (ow) (ox) (oy) (oz) (pa) (pb) (pc) (pd) (pe) (pf) (pg) (ph) (pi) (pj) (pk) (pl) (pm) (pn) (po) (pp) (pq) (pr) (ps) (pt) (pu) (pv) (pw) (px) (py) (pz) (qa) (qb) (qc) (qd) (qe) (qf) (qg) (qh) (qi) (qj) (qk) (ql) (qm) (qn) (qo) (qp) (qq) (qr) (qs) (qt) (qu) (qv) (qw) (qx) (qy) (qz) (ra) (rb) (rc) (rd) (re) (rf) (rg) (rh) (ri) (rj) (rk) (rl) (rm) (rn) (ro) (rp) (rq) (rr) (rs) (rt) (ru) (rv) (rw) (rx) (ry) (rz) (sa) (sb) (sc) (sd) (se) (sf) (sg) (sh) (si) (sj) (sk) (sl) (sm) (sn) (so) (sp) (sq) (sr) (ss) (st) (su) (sv) (sw) (sx) (sy) (sz) (ta) (tb) (tc) (td) (te) (tf) (tg) (th) (ti) (tj) (tk) (tl) (tm) (tn) (to) (tp) (tq) (tr) (ts) (tt) (tu) (tv) (tw) (tx) (ty) (tz) (ua) (ub) (uc) (ud) (ue) (uf) (ug) (uh) (ui) (uj) (uk) (ul) (um) (un) (uo) (up) (uq) (ur) (us) (ut) (uu) (uv) (uw) (ux) (uy) (uz) (va) (vb) (vc) (vd) (ve) (vf) (vg) (vh) (vi) (vj) (vk) (vl) (vm) (vn) (vo) (vp) (vq) (vr) (vs) (vt) (vu) (vv) (vw) (vx) (vy) (vz) (wa) (wb) (wc) (wd) (we) (wf) (wg) (wh) (wi) (wj) (wk) (wl) (wm) (wn) (wo) (wp) (wq) (wr) (ws) (wt) (wu) (wv) (ww) (wx) (wy) (wz) (xa) (xb) (xc) (xd) (xe) (xf) (xg) (xh) (xi) (xj) (xk) (xl) (xm) (xn) (xo) (xp) (xq) (xr) (xs) (xt) (xu) (xv) (xw) (xx) (xy) (xz) (ya) (yb) (yc) (yd) (ye) (yf) (yg) (yh) (yi) (yj) (yk) (yl) (ym) (yn) (yo) (yp) (yq) (yr) (ys) (yt) (yu) (yv) (yw) (yx) (yy) (yz) (za) (zb) (zc) (zd) (ze) (zf) (zg) (zh) (zi) (zj) (zk) (zl) (zm) (zn) (zo) (zp) (zq) (zr) (zs) (zt) (zu) (zv) (zw) (zx) (zy) (zz)

Required

Prepare the cash flows from operating activities section of the statement of cash flows for Clark Transportation Company using the indirect method.

EXERCISE 2

Cash flows from operating activities (indirect method)—Includes loss on sale of cash equivalents and extraordinary gain

EXERCISE 2

Statement of cash flows: direct method

EXERCISE 2

Comparative balance sheets for 2006 and 2005, a statement of income for 2006, and additional information from the accounting records of Red Inc. are provided below.

RED INC.
Comparative Balance Sheets
December 31, 2006 and 2005 (\$ in 000)

| | 2006 | 2005 |
|--------------------------------|--------|--------|
| Assets | | |
| Cash | \$ 100 | \$ 100 |
| Accounts receivable | 20 | 20 |
| Prepaid expenses | 10 | 10 |
| Inventory | 10 | 10 |
| Buildings and equipment | 400 | 400 |
| Less: Accumulated depreciation | (100) | (100) |
| | \$ 430 | \$ 430 |
| Liabilities | | |
| Accounts payable | \$ 80 | \$ 80 |
| Long-term debt | 10 | 10 |
| Notes payable | 10 | 10 |
| Dividends payable | 10 | 10 |
| Shareholders' Equity | | |
| Common stock | 400 | 400 |
| Retained earnings | 10 | 10 |
| | \$ 410 | \$ 410 |

RED INC.
Statement of Income
For Year Ended December 31, 2006 (\$ in millions)

| | | |
|----------------------|---------|----------------------|
| Revenues | | |
| Sales revenue | | \$2,000 |
| Expenses | | |
| Cost of goods sold | \$1,400 | |
| Depreciation expense | 50 | |
| Operating expenses | 447 | |
| | | <u>1,897</u> |
| Net Income | | <u>\$ 103</u> |

Additional information from the secondary records:

- During 2006, \$240 million of equipment was purchased to replace \$300 million of equipment (95% depreciated) sold at book value.
- In order to maintain the usual policy of paying cash dividends of \$50 million, it was necessary for Red to borrow \$50 million from a bank.

Required:

Prepare the statement of cash flows of Red Inc. for the year ended December 31, 2006. Present cash flows from operating activities by the direct method. You may omit the schedule to reconcile net income with cash flows from operating activities.

E 2-29
 Pension plan funding

• LO 1

Mayer Corporation has a defined benefit pension plan. Mayer expects to fund the plan annually with payments being made at the end of each year. Data relating to the pension plan for 2006 are as follows:

| | December 31 | |
|--|-------------------------|-------------------|
| | (\$ in millions) | |
| | 2006 | 2005 |
| Projected benefit pension cost | \$ 5 | \$ 11 |
| Net Pension Expense for 2006: | | |
| Service cost | \$132 | |
| Interest cost (6% of \$550) | 33 | |
| Actual return on the plan assets | (390) | (399) |
| Adjusted for \$5 gain on the plan assets | 60 | |
| Amortization of prior service cost | 8 | |
| Amortization of net gain | 1 | |
| | <u>\$ 82</u> | |
| | Net: \$ 87 | Net: \$ 90 |

Required:

Reconcile the journal entry used to record Mayer's 2006 pension expense in order to determine the debit paid to the pension trustee as reported on the statement of cash flows.

E 2-29
 Multiple choice
 EPO exam

• LO 1, LO 2, LO 3

The following questions dealing with cash flows are adapted from questions that appeared in past CPA examinations. Determine the response that best completes the statement or questions.

The primary purpose of a statement of cash flows is to provide relevant information about:

- Differences between operating and nonoperating cash receipts and disbursements.
- An enterprise's ability to generate future positive net cash flows.
- The cash receipts and cash disbursements of an enterprise during a period.
- An enterprise's ability to meet cash spending needs.

Items 2 and 3 are based on the following:

In preparing its cash flow statement for the year ended December 31, 2006, Kase Co. collected the following data:

| | |
|--|------------|
| Gain on sale of equipment | \$ (6,000) |
| Proceeds from sale of equipment | 10,000 |
| Purchase of A.S. Inc. bonds (par value \$200,000) | (180,000) |
| Amortization of bond discount | 2,000 |
| Dividends declared | (85,000) |
| Dividends paid | (38,000) |
| Proceeds from sales of treasury stock (carrying amount \$65,000) | 75,000 |

In its December 31, 2006, statement of cash flows:

- What amount should Kase report as net cash used in investing activities?
 - \$170,000
 - \$175,000

12-31
statement of cash
flows, indirect method

• C-4 15 MIN

12-31-3
Multiple-choice CMA
exam; cash flows

• C-3 through C-5

- c. \$58,000
d. \$54,000
3. What amount should Reye report as net cash provided by financing activities?
- a. \$28,000
b. \$2,000
c. \$4,000
d. \$5,000

Refer to the data provided in Exercise 2-2 for Reye, Inc.

Required:

Prepare the statement of cash flows for Reye, Inc., using the indirect method to report operating activities.

The following questions, along with the solutions to cash flows are adapted from questions that previously appeared on Certified Management Accountant (CMA) examinations. The CMA designation sponsored by the Institute of Management Accountants (www.imanet.org) provides members with an objective measure of knowledge and competence in the field of management accounting. Determine the response that best completes the statements or questions.

1. When preparing the statement of cash flows, companies are required to report separately as operating cash flows all of the following except:
- a. interest received on investments bonds
b. interest paid on the company's bonds
c. cash collected from customers
d. cash dividends paid on the company's stock
2. The following information was taken from the operating records of Oak Corporation for the year ended December 31:

| | |
|---|-------------|
| Proceeds from issuance of preferred stock | \$4,000,000 |
| Dividends paid on stock to stockholders | 400,000 |
| Bonds payable converted to common stock | 2,000,000 |
| Payment on purchase of treasury stock | 500,000 |
| Proceeds from sale of building | 1,200,000 |
| 2% stock dividend on common stock | 500,000 |
| Gain on sale of plant building | 200,000 |

The net cash flows from operating and financing activities that should be presented in Oak's statement of cash flows for the year ended December 31 are, respectively:

- a. \$7,000,000 and \$3,600,000
b. \$4,000,000 and \$3,400,000
c. \$6,000,000 and \$3,800,000
d. \$6,000,000 and \$3,600,000
3. The net income for Copeley, Inc. was \$3,000,000 for the year ended December 31. Additional information is as follows:

| | |
|-----------------------------------|-------------|
| Depreciation on fixed assets | \$1,500,000 |
| Gain from cash sale of land | 200,000 |
| Net change in accounts payable | 300,000 |
| Dividends paid on preferred stock | 400,000 |

The net cash provided by operating activities in the statement of cash flows for the year ended December 31 should be:

- a. \$4,500,000
b. \$4,800,000
c. \$4,500,000
d. \$5,000,000

12-34
Statement of cash
flows, account
method (except for
Appendix 21B)

• C-2

Refer to the data provided in Exercise 21-3 for Red, Inc.

Required:

Prepare the statement of cash flows (direct method) for Red, Inc. Use the T-account method to assist in your analysis.

PROBLEMS

An alternate exercise and problem set is available on the text website www.cengage.com/applymodule

P 21-1

Classification of Cash Flows from Investing and Financing Activities

LO2 LO3 through LO7

Which below are transactions that might be reported as investing and/or financing activities on a statement of cash flows? Possible reporting classifications of these transactions are provided plus

Required:

Indicate the reporting classification of each transaction by entering the appropriate classification code

| Classifications | |
|-----------------|--|
| + | Investing activity (cash inflow) |
| + | Investing activity (non-cash inflow) |
| F | Financing activity (cash inflow) |
| -F | Financing activity (cash outflow) |
| N | Noncash investing and financing activity |
| X | Not reported as an investing and/or a financing activity |

Transactions

Example

1. Sale of land
2. Issuance of common stock for cash
3. Purchase of treasury stock
4. Conversion of bonds payable to common stock
5. Lease of equipment by capital lease
6. Sale of patent
7. Acquisition of building for cash
8. Issuance of common stock for land
9. Collection of note receivable (principal amount)
10. Issuance of bonds
11. Issuance of stock dividend
12. Payment of property dividends
13. Payment of cash dividends
14. Issuance of short-term note payable for cash
15. Issuance of long-term note payable for cash
16. Purchase of marketable securities from cash equivalents
17. Payment of note payable
18. Cash dividend to 5-year employee policy
19. Sale of equipment
20. Issuance of note payable for equipment
21. Acquisition of intangible assets for equipment
22. Retirement of long-term debt by issuing common stock
23. Appropriation of retained earnings for plant expansion
24. Payment of semiannual interest on 5-year note payable
25. Retirement of preferred stock
26. Loan to another firm
27. Sale of inventory to customers
28. Purchase of marketable securities from cash equivalents

P 21-2

Statement of cash flows—direct method

LO1 LO2



The comparative balance sheets for 2006 and 2005 and the statement of income for 2006 are provided for Wright Company. Additional information from Wright's accounting records is provided also.

WRIGHT COMPANY Comparative Balance Sheets December 31, 2006 and 2005 in \$000

| | 2006 | 2005 |
|--------------------------------|-------|-------|
| Assets | | |
| Cash | \$ 32 | \$ 30 |
| Marketable securities | 75 | 5 |
| Short-term investments | 4 | 5 |
| Inventory | 75 | 70 |
| Prepaid | 2 | 60 |
| Buildings and equipment | 52 | 40 |
| Less: Accumulated depreciation | (8) | (7) |
| | \$78 | \$85 |

| Liabilities | | |
|------------------------------|-----|-----|
| Accounts payable | 515 | 514 |
| Notes payable | | |
| Interest payable | 5 | 3 |
| Income tax payable | 6 | 12 |
| Notes payable | 0 | 30 |
| Bonds payable | 160 | 100 |
| Shareholders' Equity | | |
| Common stock | 50 | 200 |
| Paid-in capital—common stock | 126 | 100 |
| Retained earnings | 115 | 0 |
| | 515 | 515 |

WRIGHT COMPANY
Income Statement
For Year Ended December 31, 2006
(\$ in 000s)

| Revenues | | |
|-------------------------|-----|--------------|
| Sales revenue | | \$1,200 |
| Expenses | | |
| Cost of goods sold | 310 | |
| Selling expenses | 25 | |
| Administrative expenses | 20 | |
| Interest expense | 5 | |
| Income tax expense | 10 | |
| | | 370 |
| Net Income | | |
| | | <u>\$830</u> |

Additional information from the company's records:

a. The company's net income for 2006 was \$830,000.

b. The company's stock of 100,000 shares was purchased for \$25.00 as a short-term investment and sold for \$26.00.

c. The company's stock of 100,000 shares was purchased for \$25.00.

d. A \$10,000 note was paid at maturity in January.

e. On January 1, 2006, \$100,000 of bonds were sold at face value.

f. Common stock, \$10.00 per share, was sold for \$76,000.

g. Net income was \$830,000 and cash dividends of \$0.50 per share were paid to shareholders.

Required:

Prepare the statement of cash flows for Wright Company for the year ended December 31, 2006. Present cash flows from operating activities by the indirect method. (You may omit the schedule to reconcile net income with cash flows from operating activities.)

P 2-3
Statement of cash flows, direct method

• 10-12

The comparative balance sheets for 2006 and 2005 and the expenses of operation for 2006 are given below for National Interchange Company. Additional information from NCI's accounting records is provided also.

NATIONAL INTERCHANGE COMPANY
Comparative Balance Sheets
December 31, 2006 and 2005
(\$ in millions)

| | 2006 | 2005 |
|--------------------------------------|--------------|--------------|
| Assets | | |
| Cash | \$ 72 | \$ 14 |
| Accounts receivable | 83 | 91 |
| Allowance for uncollectible accounts | 10 | 10 |
| Prepaid insurance | 7 | 10 |
| Inventory | 10 | 65 |
| Investment in NCI | 10 | 10 |
| Land | 150 | 150 |
| Buildings and equipment | 290 | 270 |
| Less Accumulated depreciation | (85) | (75) |
| Trademark | 20 | 20 |
| | <u>\$652</u> | <u>\$656</u> |

| | | |
|-------------------------------|--------------|--------------|
| Liabilities | | |
| Accounts payable | \$ 30 | \$ 40 |
| Salaries payable | | 5 |
| Deferred income liability | 0 | |
| Lease liability | 80 | |
| Bonds payable | 145 | 110 |
| Less: Discount on bonds | (20) | (20) |
| Shareholders' Equity | | |
| Common stock | 310 | 290 |
| Paid-in capital—excess of par | 95 | 95 |
| Preferred stock | 50 | 0 |
| Retained earnings | 158 | 50 |
| | <u>\$867</u> | <u>\$550</u> |

NATIONAL INTERCABLE COMPANY
Income Statement
For Year Ended December 31, 2006
(in millions)

| | | |
|---|-------|--------------|
| Revenues | | |
| Sales revenue | \$200 | |
| Investment revenue | 5 | |
| Gain on sale of investments | 5 | \$210 |
| Expenses | | |
| Cost of goods sold | 125 | |
| Salaries expense | 55 | |
| Depreciation expense | 20 | |
| Indemnification expense | | |
| Bad debt expense | | |
| Insurance expense | 1 | |
| Bond interest expense | 10 | 250 |
| Income before tax and extraordinary items | | 84 |
| Income tax expense | | (30) |
| Income before extraordinary items | | 54 |
| Extraordinary net tornado | 42 | |
| Less: Tax savings | 0 | 7 |
| Net income | | \$ 25 |

Additional information from the accounting records:

- During 2006, \$5 million of customer accounts were written off as uncollectible.
- Investment revenue includes National Intercable Company's 5% million share of the net income of Central Fiber Optics Corporation, an equity method investee.
- A long-term investment in bonds, originally purchased for \$30 million, was sold for \$33 million.
- Prior accounting income excluded taxable income causing the deferred income tax liability to increase by \$5 million.
- A building that originally cost \$60 million and which was usefully depreciated, was destroyed by a tornado. Some undamaged parts were sold for \$3 million.
- A building was acquired by a seven-year capital lease, present value of lease payments, \$60 million.
- \$ 10 million of bonds were retired at maturity.
- \$20 million par value of common stock was sold for \$30 million, and \$50 million of preferred stock was retired.
- Shareholders were paid cash dividends of \$40 million.

Required:

- Prepare a spreadsheet for preparation of the statement of cash flows (direct method) of National Intercable Company for the year ended December 31, 2006.
- Prepare the statement of cash flows. (A reconciliation schedule is not required.)

The comparative balance sheets for 2006 and 2005 and the statement of income for 2006 are given below for JWA Company. Additional information from JWA's accounting records is provided also.

P2-4
Statement of cash flows, direct method

Excel

Excel

DUX COMPANY
Comparative Balance Sheets
December 31, 2006 and 2005
 (\$ in 000s)

| | 2006 | 2005 |
|--------------------------------------|--------------|--------------|
| Assets | | |
| Cash | \$ 37 | \$ 25 |
| Accounts receivable | 48 | 50 |
| Inventory, net of obsolete inventory | 45 | 31 |
| Prepaid insurance | 3 | 2 |
| Plant and equipment | 55 | 50 |
| Long-term investment | 5 | 4 |
| Land | 4 | 4 |
| Patents and copyrights | 25 | 22 |
| Other assets | 20 | 10 |
| | <u>\$401</u> | <u>\$302</u> |
| Liabilities | | |
| Accounts payable | \$ 3 | \$ 20 |
| Salaries payable | 2 | 5 |
| Interest payable | 4 | 2 |
| Income tax payable | 1 | 0 |
| Notes payable | 10 | 0 |
| Long-term debt | 95 | 70 |
| Loss account on sale of equipment | 0 | (3) |
| Shareholders' Equity | | |
| Common stock | 10 | 200 |
| Preferred stock, \$5 par value | 25 | 20 |
| Retained earnings | 45 | 47 |
| Less treasury stock (cost) | 8 | 0 |
| | <u>\$420</u> | <u>\$369</u> |

DUX COMPANY
Income Statement
For the Year Ended December 31, 2006
 (\$ in 000s)

| | | |
|--------------------------|-------|--------------|
| Revenues | | |
| Sales revenue | \$250 | |
| Dividend revenue | 3 | \$253 |
| Expenses | | |
| Cost of goods sold | 120 | |
| Selling expense | 25 | |
| Depreciation expense | 5 | |
| Goodwill expense | | |
| Interest expense | 5 | |
| Loss on sale of building | 3 | |
| Income tax expense | 6 | 28 |
| Net income | | \$ 75 |

Additional information from the accounting records:

- a. A building that originally cost \$40,000 and which was three-fourths depreciated, was sold for \$7,000.
- b. The common stock of Beta Corporation was purchased for \$5,000 as a long-term investment. Property was acquired by issuing a 10% seven-year \$20,000 note payable to the seller.
- c. New equipment was purchased for \$4,000 cash.
- d. On January 1, 2006, \$25,000 of bonds were sold at their cost.
- e. On January 9, Dux issued a 5% stock dividend (1,000 shares). The market price of the \$10 par value common stock was \$14 per share at that time.
- f. Cash dividends of \$3,000 were paid to shareholders.
- g. On November 2, 500 shares of common stock were repurchased as treasury stock at a cost of \$8,000.

Required

Prepare the statement of cash flows of this Company for the year ended December 31, 2006. Present cash flows from operating activities by the direct method. (You may omit the schedule to reconcile net income with cash flows from operating activities.)

P2-5
Statement of cash
flows—direct method

EXERCISE 2-5



Comparative balance sheets for 2006 and 2005 and a statement of income for 2006 are given below for Metagrobolize Industries. Additional information from the accounting records of Metagrobolize also is provided.

METAGROBOLIZE INDUSTRIES
Comparative Balance Sheets
December 31, 2006 and 2005
(\$ in 000s)

| | 2006 | 2005 |
|-------------------------------|----------------|----------------|
| Assets | | |
| Cash | \$ 600 | \$ 750 |
| Accounts receivable | 600 | 450 |
| Inventory | 400 | 350 |
| Land | 400 | 400 |
| Building | 700 | 700 |
| Less Accumulated depreciation | (300) | (250) |
| Equipment | 2,850 | 2,450 |
| Less Accumulated depreciation | (1,250) | (1,000) |
| Patent | 1,200 | 500 |
| | \$6,900 | \$5,950 |
| Liabilities | | |
| Accounts payable | \$ 750 | \$ 450 |
| Accrued expenses payable | 300 | 225 |
| Lease liability—land | 150 | 0 |
| Shareholders' Equity | | |
| Common stock | 3,150 | 3,000 |
| Paid-in capital—excess of par | 750 | 675 |
| Retained earnings | 1,800 | 1,500 |
| | \$6,900 | \$5,950 |

METAGROBOLIZE INDUSTRIES
Income Statement
For the Year Ended December 31, 2006
(\$ in 000s)

| | | |
|--------------------------------|---------|---------------|
| Revenues | | |
| Sales revenue | \$2,800 | |
| Gain on sale of land | 50 | \$2,850 |
| Expenses | | |
| Cost of goods sold | 1,600 | |
| Depreciation expense—building | 50 | |
| Depreciation expense—equipment | 215 | |
| Loss on sale of equipment | 15 | |
| Amortization of patent | (100) | |
| Operating expenses | 200 | 770 |
| Net income | | \$ 450 |

a. Additional information from the accounting records:

- During 2006, gain on sale of land of \$50 (the 2005 depreciated was sold).
- The statement of retained earnings reveals reductions of \$225,000 and \$450,000 for stock dividends and cash dividends, respectively.

Required

Prepare the statement of cash flows of Metagrobolize for the year ended December 31, 2006. Present cash flows from operating activities by the direct method. (You may omit the schedule to reconcile net income with cash flows from operating activities.)

P 21-6
Cash flows from operating activities (direct method) derived from an income statement and cash flows from operating activities (indirect method)

• 21-64

The income statement and a schedule reconciling cash flows from operating activities to net income are provided below in millions for Mike Roe Company.

| MIKE ROE COMPANY
Income Statement
For the Year Ended December 31, 2006 | | Reconciliation of Net Income
to Net Cash Flows
from Operating Activities | |
|--|-------|--|------|
| Sales | \$150 | Net income | \$13 |
| Cost of goods sold | (90) | Adjustments for noncash effects: | |
| Gross margin | 60 | Decrease in accounts receivable | 5 |
| Salaries expense | (20) | Gain on sale of equipment | (10) |
| Insurance expense | (1) | Increase in inventory | (6) |
| Depreciation expense | 2 | Increase in accounts payable | 9 |
| Bad debt expense | 2 | Increase in salaries payable | 7 |
| Interest expense | 6 | Increase in expense | 5 |
| Gain on sale of equipment | 12 | Increase in allowance for doubtful | 2 |
| Loss on sale of land | (3) | Decrease in bond discount | 3 |
| Income before tax | 27 | Decrease in prepaid insurance | 2 |
| Income tax expense | (13) | Loss on sale of land | 3 |
| Net income | \$13 | Increase in income tax payable | 6 |
| | | Net cash flows from operating activities | \$31 |

Required

Calculate each of the following amounts for Mike Roe Company:

- Cash received from customers during the reporting period
- Cash paid for equipment in 2006 during the reporting period
- Cash paid to employees during the reporting period
- Cash paid for insurance during the reporting period
- Cash paid for income taxes during the reporting period

2 Prepare the cash flows from operating activities section of the statement of cash flows (direct method)

The income statement and a schedule reconciling cash flows from operating activities to net income are provided below in millions for Microsoft Corporation.

P 21-7
Cash flows from operating activities (direct method) derived from an income statement and cash flows from operating activities (indirect method)

• 21-64

| MICROSOFT CORPORATION
Income Statement
For the Year Ended December 31, 2006
(\$ in millions) | | Reconciliation of Net Income
to Net Cash Flows
from Operating Activities | |
|---|-------|--|------|
| Sales | \$110 | Net income | \$62 |
| Cost of goods sold | (20) | Adjustments for noncash effects: | |
| Gross margin | 90 | Depreciation expense | 10 |
| Patent amortization expense | (20) | Patent amortization expense | 4 |
| Research and development | (10) | Loss on sale of land | 6 |
| Goodwill impairment | (10) | Extraordinary gain sale of subsidiary | (24) |
| Interest expense | (10) | Decrease in accounts receivable | 6 |
| Loss on sale of land | (6) | Increase in inventory | (12) |
| Gain on sale of cash equivalents | 2 | Increase in accounts payable | 18 |
| Income tax expense and extraordinary gain | (1) | Decrease in bond discount | 1 |
| Income tax expense | (1) | Increase in salaries payable | 4 |
| Income before extraordinary gain | 50 | Decrease in prepaid insurance | 4 |
| Extraordinary gain | (1) | Increase in income tax payable | 10 |
| Gain on sale of cash equivalents | (2) | Net cash flows from operating activities | \$19 |
| Net income | \$13 | | |

Required

Prepare the cash flows from operating activities section of the statement of cash flows (direct method)

P 21-8

Cash flows from operating activities (direct method and indirect method)—deferred income tax liability and amortization of bond discount

LO3, LO4

Methods of the financial statements for Parrell Company are provided below.

PARRELL COMPANY
Income Statement
For the Year Ended December 31, 2006
(\$ in 000s)

| | | |
|---------------------------|-------|---------------|
| Sales | | \$400 |
| Cost of goods sold | | 200 |
| Gross margin | | 200 |
| Sales expense | \$ 25 | |
| Administrative expense | 40 | |
| Depreciation expense | 25 | |
| Interest expense | 50 | 140 |
| Gain on sale of assets | | 5 |
| Gain on sale of buildings | | 2 |
| Loss on sale of machinery | | 1 |
| Income before tax | | 166 |
| Income tax expense | | 20 |
| Net income | | \$ 146 |

PARRELL COMPANY
Selected Accounts from Comparative Balance Sheets
December 31, 2006 and 2005
(\$ in 000s)

| | Year | | |
|-------------------------------|-------|-------|--------|
| | 2006 | 2005 | Change |
| Cash | \$ 30 | \$ 00 | \$ 30 |
| Accounts receivable | 324 | 266 | 58 |
| Inventory | 92 | 85 | 7 |
| Prepaid insurance | 64 | 70 | (6) |
| Accounts payable | 216 | 17 | 199 |
| Salaries payable | 2 | 93 | (91) |
| Deferred income tax liability | 80 | 52 | 28 |
| Bond discount | 90 | 100 | (10) |

Required

1. Prepare the cash flows from operating activities section of the statement of cash flows for Parrell Company using the direct method.
2. Prepare the cash flows from operating activities section of the statement of cash flows for Parrell Company using the indirect method.

P 21-9

Cash flows from operating activities (direct method and indirect method)—gain on sale of cash equivalents and extraordinary loss

LO3, LO4

Portions of the financial statements for Hawk Eye Company are provided below.

HAWK EYE COMPANY
Income Statement
For the Year Ended December 31, 2006

| | | |
|--|-------|--------------|
| Sales | | \$700 |
| Cost of goods sold | | 350 |
| Gross margin | | 350 |
| Salaries expense | \$225 | |
| Depreciation expense | 90 | |
| Bad debt expense | 10 | |
| Interest expense | 40 | |
| Gain on sale of cash equivalents | 15 | 45 |
| Income before taxes and extraordinary loss | | 90 |
| Income tax expense | | 140 |
| Income before extraordinary loss | | 40 |
| Extraordinary loss (flood damage) | 5 | |
| Loss on extinguishment of debt | 15 | 20 |
| Net income | | \$ 20 |

HAWKEYE COMPANY
Selected Accounts from Comparative Balance Sheets
December 31, 2006 and 2005

| | Year | | |
|------------------------------|-------|-------|--------|
| | 2006 | 2005 | Change |
| Cash | \$212 | \$200 | \$12 |
| Accounts receivable | 418 | 432 | (14) |
| Allowance for uncollectibles | 23 | 11 | 12 |
| Inventory | 860 | 850 | 10 |
| Accounts payable | 210 | 234 | (24) |
| Salaries payable | 180 | 186 | (6) |
| Interest payable | 55 | 50 | 5 |
| Income taxes payable | 90 | 104 | (14) |

Required

- Prepare the cash flows from operating activities section of the statement of cash flows for Hawkeye Company using the direct method.
- Prepare the cash flows from operating activities section of the statement of cash flows for Hawkeye Company using the indirect method.

The following schedule relates the income statement with cash flows from operating activities derived by both the direct and indirect methods, as the format illustrated by Group 1 in the chapter. Some elements necessary to complete the schedule are missing.

Problem 21-9

Relationship between the income statement and cash flows from operating activities (direct method and indirect method)

LO 3, 4, 5

| Income statement | | Cash Flows from Operating Activities | | | |
|----------------------------|-------------|---|-------------|---|-------------|
| | | Indirect Method | | Direct Method | |
| | | Net income | \$ 7 | | |
| | | Add: | | | |
| Gain on sale of equipment | \$400 | Decrease in accounts receivable | 14 | Cash received from customers | \$ 9 |
| Loss on disposal of assets | 20 | Loss on sale of equipment | (24) | (Not reported—no cash effect) | |
| Depreciation expense | 70 | Increase in allowance for uncollectibles | 20 | | |
| Gain on sale of assets | 30 | Decrease in salaries payable | 6 | Cash paid to suppliers | (76) |
| Loss on sale of assets | 30 | Increase in salaries payable | 0 | Cash paid to employees | (23) |
| Depreciation expense | (9) | Decrease in interest payable | 5 | Cash paid for depreciation | 7 |
| Gain on sale of assets | (3) | Decrease in interest payable | 3 | (Not reported—no cash effect) | |
| Interest expense | 5 | Decrease in income tax payable | 14 | Cash paid for interest | (5) |
| Insurance expense | 2 | Decrease in prepaid insurance | 5 | Cash paid for insurance | (7) |
| Loss on sale of assets | (6) | Decrease in income tax payable | 0 | (Not reported—no cash effect) | |
| Interest expense | (7) | Decrease in income tax payable | 0 | Cash paid for income taxes | (14) |
| Net income | \$ 7 | Net cash flows from operating activities | \$57 | Net cash flows from operating activities | \$57 |

Required

Complete the schedule by determining each of the following missing elements:

- Cash received from customers
- Loss on disposal of assets
- Decrease in salaries payable
- Cash paid for depreciation
- Decrease in interest payable
- Decrease in prepaid insurance
- Decrease in income tax payable
- Net income

Problem 21-10

Prepare a statement of cash flows (direct method)

LO 3, 4, 5

The comparative balance sheets for 2006 and 2005 and the income statement for 2006 are given below for Andruski Company. Additional information about Andruski's accounting methods is provided below.

ARDUOUS COMPANY
Comparative Balance Sheets
December 31, 2006 and 2005
(in millions)

| | 2006 | 2005 |
|-----------------------------------|---------------|---------------|
| Assets | | |
| Cash | \$ 117 | \$ 8 |
| Accounts receivable | 200 | 207 |
| Prepaid expenses and other assets | 0 | 0 |
| Investment securities | - | 4 |
| Inventory | 25 | 200 |
| Property, plant, and equipment | 4 | 8 |
| Goodwill | 156 | 25 |
| Intangible assets | 106 | 50 |
| Long-term investments | 40 | 400 |
| Accumulated depreciation | (22) | 0 |
| Patent | 5 | 0 |
| | <u>\$ 570</u> | <u>\$ 670</u> |
| Liabilities | | |
| Accounts payable | \$ 50 | \$ 65 |
| Deferred revenue | 0 | 0 |
| Bonds payable | 0 | 4 |
| Income tax payable | 12 | 4 |
| Deferred income tax liability | 19 | 5 |
| Notes payable | 20 | 0 |
| Accruals | 62 | - |
| Other liabilities | 215 | 200 |
| Less: Liabilities on bonds | (20) | 25 |
| Shareholders' Equity | | |
| Common stock | 430 | 400 |
| Preferred stock, excess of par | 95 | 65 |
| Retained earnings | 25 | 0 |
| Retained earnings | 242 | 227 |
| Less: Treasury stock at cost | (90) | 0 |
| | <u>\$ 570</u> | <u>\$ 670</u> |

ARDUOUS COMPANY
Income Statement
For Year Ended December 31, 2006
(in millions)

| | | |
|--------------------------------|-------|--------------|
| Revenues | | |
| Sales revenue | \$400 | |
| License fee revenue | 0 | |
| Gain on sale of treasury bills | 2 | \$420 |
| Expenses | | |
| Cost of goods sold | 80 | |
| Depreciation expense | 65 | |
| Amortization expense | - | |
| Patent amortization expense | 2 | |
| Goodwill expense | 0 | |
| Intangible expense | 2 | |
| Other operating expenses | 18 | |
| Extraordinary loss | 500 | |
| Less: Income tax | 0 | |
| Income tax expense | 45 | 356 |
| Net income | | <u>\$ 57</u> |

Additional information from the accounting records:

- During 2006, \$6 million of customer accounts were written off as uncollectible.
- Investment revenue includes Arduous Company's \$6 million share of the net income of Omni Company, an equity method investee.
- Treasury bills were sold during 2006 at a gain of \$2 million. Arduous Company classifies its investments in Treasury bills as cash equivalents.

- A machine originally costing \$70 million that was depreciated by the straight-line method over 10 years was replaced by a new machine that cost \$80 million. The old machine was sold for \$10 million.
- Temporary differences between pretax accounting income and taxable income caused the deferred income tax liability to increase by \$1 million.
- The preferred stock of Jory Corporation was purchased for \$25 million as a long-term investment.
- Land costing \$40 million was acquired by issuing \$20 million check and a 10% (four-year, \$20 million) note payable to the seller.
- A building was acquired by a 15-year capital lease; present value of lease payments, \$80 million.
- \$60 million of bonds were issued at maturity.
- In February, Abacus issued a 4% stock dividend (4 million shares). The market price of the \$5 per share common stock was \$150 per share at that time.
- In April, 1 million shares of common stock were repurchased as treasury stock at a cost of \$9 million. Abacus uses the cost method to account for treasury stock.

Required:
Prepare the statement of cash flows of Abacus Company for the year ended December 31, 2006. Prepare cash flows from operating activities by the direct method. (A reconciliation schedule is not required.)

Shown below is T-account format and the changes affecting the retained earnings of Brenner-Jude Corporation during 2006. At January 1, 2006, the corporation had outstanding 105 million common shares, \$5 per share.

| Retained Earnings (\$ in millions) | | |
|---|------|-------------------------|
| | 2006 | Beginning balance |
| Retirement of 5 million common shares for \$22 million | 2 | |
| | 88 | Net income for the year |
| Declaration and payment of a \$0.33 per share cash dividend | 33 | |
| Declaration and distribution of a 4% stock dividend | 20 | |
| | 123 | Ending balance |

- From the information provided by the account changes you should be able to re-create the transactions that affected Brenner-Jude's retained earnings during 2006. Reconstruct the journal entries which you use as spreadsheet entries in the preparation of a statement of cash flows. Also indicate any investing and financing activities you identify from this analysis that should be reported on the statement of cash flows.
- Prepare a statement of retained earnings for Brenner-Jude for the year ended 2006. You may wish to compare your solution to this problem with the parallel situation described in Exercise 20-4.

Following are selected balance sheet accounts of Del Conte Corp. at December 31, 2006 and 2005, and the increases or decreases in each account from 2005 to 2006. Also presented is selected income statement information for the year ended December 31, 2006 and additional information.

| Selected Balance Sheet Accounts | 2006 | 2005 | Increase (Decrease) |
|---|-----------|-----------|---------------------|
| Assets | | | |
| Accounts receivable | \$ 34,000 | \$ 29,000 | \$ 5,000 |
| Property, plant, and equipment | 277,000 | 247,000 | 30,000 |
| Accumulated depreciation | 118,000 | 147,000 | (29,000) |
| Liabilities and Stockholders' Equity | | | |
| Bonds payable | 48,000 | 48,000 | 0,000 |
| Dividends payable | 8,000 | 3,000 | 5,000 |
| Common stock, \$5 par | 22,000 | 19,000 | 3,000 |
| Additional paid-in capital | 9,000 | 3,000 | 6,000 |
| Retained earnings | 104,000 | 97,000 | 7,000 |
| Selected Income Statement Information for the Year Ended December 31, 2006 | | | |
| Sales revenue | \$ 55,000 | | |
| Interest expense | 3,000 | | |
| Gain on sale of equipment | 10,000 | | |
| Net income | 28,000 | | |

P 21-1
Transfer 40% affecting retained earnings

1. 100% 100%

P 21-11
Various cash flows
1. 100% through 100%

Additional given material:

- Accounts receivable relate to sales of their limited-line.
 - During 2006, equipment costing \$44,000 was sold for cash.
 - During 2006, \$20,000 of bonds payable were issued in exchange for property, plant, and equipment.
- There was no amortization of bond discounts or premium.

Required:

Items 1 through 5 represent activities that will be reported in Sunrise Company's statement of cash flows for the year ended December 31, 2006. The following two responses are required for each item:

- Determine the activity that should be reported on the 2006 statement of cash flows.
- Indicate the balance sheet account and category in which the amount should be reported in the statement of cash flows.

Operating activity
Investing activity
Financing activity

| | Amount | Category |
|---|--------|----------|
| 1. Cash collections from customers during 2006 | | |
| 2. Payment for purchase of property, plant, and equipment | | |
| 3. Proceeds from sale of equipment | | |
| 4. Cash dividends paid | | |
| 5. Redemption of bonds payable | | |

40 (4) (3) (2) (1)

P 21-22

Statement of cash flows—indirect method
limited information

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The comparative balance sheets for 2006 and 2005 are given below for Sunrise Company. Net income for 2006 was \$50 million.

SUNRISE COMPANY
Comparative Balance Sheets
December 31, 2006 and 2005
(in millions)

| | 2006 | 2005 |
|--------------------------------|--------------|--------------|
| Assets | | |
| Cash | \$ 45 | \$ 40 |
| Accounts receivable | 92 | 95 |
| Prepaid expenses | 17 | (8) |
| Inventory | 8 | 5 |
| Long-term investments | 45 | 30 |
| Land | 80 | 40 |
| Buildings and equipment | 100 | 90 |
| Less: Accumulated depreciation | 4 | 30 |
| Patents | 142 | 93 |
| | 6 | 12 |
| | <u>\$743</u> | <u>\$604</u> |
| Liabilities | | |
| Accounts payable | \$ 7 | \$ 32 |
| Dividends payable | 14 | 3 |
| Notes payable | 35 | 3 |
| Bonds payable | 11 | 0 |
| Stocks payable | 65 | 25 |
| Shareholders' Equity | | |
| Common stock | 60 | 50 |
| Paid-in capital—excess of par | 245 | 205 |
| Retained earnings | 277 | 82 |
| | <u>\$743</u> | <u>\$604</u> |

Required:

Prepare the statement of cash flows of Sunrise Company for the year ended December 31, 2006, using the indirect method to present cash flows from operating activities because you do not have sufficient information to use the direct method. You will need to make reasonable assumptions concerning the reasons for changes in some account balances. A spreadsheet or T-account analysis will be helpful.

P 21-15
Statement of cash flows; indirect method

• LO4, LO8

P 21-16
Statement of cash flows; indirect method

• LO4, LO8

P 21-17
Statement of cash flows; indirect method

• LO4, LO8

Excel

P 21-18
Statement of cash flows; T-account method

• LO3, LO8

P 21-19
Statement of cash flows; T-account method

• LO3, LO8

P 21-20
Statement of cash flows; T-account method

• LO3, LO8

Refer to the data provided in the Problem 21-4 for Dax Company.

Required:

Prepare the statement of cash flows for Dax Company using the *indirect method*.

Refer to the data provided in the Problem 21-5 for Metagroboline Industries.

Required:

Prepare the statement of cash flows for Metagroboline Industries using the *indirect method*.

Refer to the data provided in the Problem 21-4 for Ardross Company.

Required:

Prepare the statement of cash flows for Ardross Company using the *indirect method*.

Topic: The following problems use the technique learned in Appendix 21B.

Refer to the data provided in the Problem 21-4 for Dax Company.

Required:

Prepare the statement of cash flows for Dax Company. Use the T-account method to assist in your analysis.

Refer to the data provided in the Problem 21-5 for Metagroboline Industries.

Required:

Prepare the statement of cash flows for Metagroboline Industries. Use the T-account method to assist in your analysis.

Refer to the data provided in the Problem 21-4 for Ardross Company.

Required:

Prepare the statement of cash flows for Ardross Company. Use the T-account method to assist in your analysis.

BROADEN YOUR PERSPECTIVE



Case: Enigma

Distinguish income and cash flows

• LO1, LO2, LO4

Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students, integrate what you've learned, apply it in real world situations, and consider the global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

"Why can't we pay our shareholders a dividend?" shouted your new boss. "This income statement you prepared for me says we earned \$5 million!"

You were hired last month as the chief accountant for Enigma Corporation which was organized on July 1 of the year just ended. You recently prepared the income statement below.

ENIGMA CORPORATION Income Statement For the Six Months Ended December 31, 2006 (\$ in millions)

| | |
|----------------------|------|
| Sales revenue | \$75 |
| Cost of goods sold | 30 |
| Depreciation expense | 5 |
| Remaining expenses | 15 |
| Net income | \$5 |

ENIGMA CORPORATION

Balance Sheet

December 31, 2006 (in millions)

| | |
|---------------------------|------|
| Cash | \$ 3 |
| Accounts receivable (net) | 20 |
| Merchandise inventory | 5 |
| Prepaid expenses (net) | 44 |
| Total | \$82 |
| Accounts payable | \$ 2 |
| Deferred expenses payable | 7 |
| Notes payable | 36 |
| Common stock | 30 |
| Retained earnings | 5 |
| Total | \$80 |

You have just explained to your boss, Robert James, that although net income was \$5 million, operating activities produced a net decrease in cash. Unable to understand your verbal explanation, he has asked you to prepare a written report.

Required

Prepare a report explaining the apparent discrepancy between Enigma's profitability and its cash flow. To convince the boss, if you have a misunderstanding of the situation, include in your report a determination of cash flow if an operating activity by both the direct and indirect methods. Your report should also include a narrative explanation of how it is possible for operating activities to simultaneously produce a positive net income and negative net cash flow.

Assignment 2-2
Discrepancy in income and cash flows

LO 7a

You are a loan officer for First Renaissance Bank. You have an application for a loan from a firm called Daring Corporation. The application includes the following financial statements:

DARING CORPORATION

Income Statement

For the Year Ended December 31, 2006

| | |
|----------------------|------------|
| Sales revenue | \$ 100,000 |
| Cost of goods sold | (50,000) |
| Depreciation expense | 5,000 |
| Remaining expenses | (25,000) |
| Net income | \$ 20,000 |

DARING CORPORATION

Balance Sheet

December 31, 2006

| | |
|--------------------------|-----------|
| Cash | \$ 5,000 |
| Accounts receivable | 25,000 |
| Inventory | 20,000 |
| Operational assets | 55,000 |
| Accumulated depreciation | (15,000) |
| Total | \$ 90,000 |
| Accounts payable | \$ 10,000 |
| Interest payable | 5,000 |
| Note payable | 40,000 |
| Common stock | 20,000 |
| Retained earnings | 20,000 |
| Total | \$ 90,000 |

It is not Daring's profitability that worries you. The income statement submitted with the application shows net income of \$20,000 for 2006. Daring's 2005 year-end net income was \$10,000. By referring to the balance sheet, you see that the net income represents a 10% rate of return on total assets of \$100,000. Your concern stems from the fact that the note payable reported on Daring's balance sheet is a two-year loan you approved earlier in the year.

You also recall another promising new company that just last year defaulted on another of your loans when it filed for bankruptcy. In your effort to prevent additional cash flow losses to obligating borrowers, you are questioning additional information from Daring. You decide to test your memory of the intermediate accounting class you took in night school by attempting to prepare a statement of cash flows from the information available in the loan application.

Interpreting Case 21-3
 Prepare a statement of cash flows using the direct method.
 Lesson and Review
 Statement of cash flows

• C.J. 15-106

Research Case 21-4
 Locate and extract relevant information for a financial reporting issue; investigative; Microsoft Corporation

• C.J.

Required

Prepare a statement of cash flows using the direct method. Are your concerns justified?

Advanced Equipment leased a protein analyzer to Richards Chemical, Inc. on September 30, 2006. Advanced purchased the machine from Mark's Machine Works for \$150,000. The lease requires payment by Richards to make quarterly lease payments of \$49,548, payable each September 30, December 31, March 31, and June 30, with the first payment at September 30, 2006. Advanced's implicit interest rate is 10%.

Required

- What journal entry relates to the lease when Richards reports its statement of cash flows for the year ended December 31, 2006?
- What prices amounts related to the lease would Advanced report in its statement of cash flows for the year ended December 31, 2006?
- Assume Mark's had sold the machine at a cost of 50 million and that Richards leased the machine directly from Mark's. What prices amounts related to the lease would Mark's report in its statement of cash flows for the year ended December 31, 2006?

A meeting of your accounting department is scheduled for early next week morning. Our highest discussion is certain to be the appropriate adjustments to be included in your company's statement of cash flows, including the proper method of reporting operating activities. Halfway discussions have suggested some degree of uncertainty, particularly regarding unearned revenues, which are substantial for the company. Because your firm was publicly traded last week, the reporting issue is a new one for you and your other members of the department. In preparation for the meeting, you sought out the financial statements of Microsoft Corporation, knowing that it too had substantial unearned revenues. The operating activities section of the comparative statements of cash flows for Microsoft is presented below.

Cash Flows Statement (in millions)

| Year Ended June 30 | 2007 | 2006 | 2005 |
|---|----------|----------|----------|
| Operating activities | | | |
| Net income | \$ 5,328 | \$ 7,531 | \$ 8,188 |
| Depreciation, amortization, and other noncash items | 938 | 1,393 | 1,186 |
| Stock-based compensation | 3,754 | 3,749 | 5,734 |
| Loss from operations of discontinued operations | 744 | 100 | 746 |
| Income tax benefits | 576 | 365 | 1,120 |
| Deferred income taxes | (1,580) | (824) | (1,479) |
| Unearned revenue | 1,152 | 12,514 | 11,277 |
| Change from discontinued operations | (5,929) | (15,292) | (12,827) |
| Accounts receivable | (1,623) | 187 | (687) |
| Other assets | (264) | 412 | 478 |
| Other operating assets | 79 | (28) | 34 |
| Other current liabilities | 440 | 35 | 1,063 |
| Other long-term liabilities | 216 | 440 | 75 |
| Net cash from operations | 4,504 | 5,757 | 4,656 |

Required

- Use EdgarBears (edgarbears.com) or another method to locate the financial statements of Microsoft Corporation. Search the disclosure notes for information about how Microsoft accounts for its unearned revenues. What percentage of Microsoft's sales of Windows XP Professional does the company record as unearned revenue initially?

Why does the statement of cash flows include "unearned revenue" as an addition in the operations section? Why is "reduction of unearned revenue" included as a deduction from net income? Why do you think Microsoft reported these two items separately rather than just adjusting net income for the change in the unearned revenue account balance?

- Why is stock-based compensation added to net income?

"Be careful with that coffee!" Your roommate is saying in disbelief as she papers in front of her. "This was my contribution to our team project," she protests. "When you spilled your coffee, it splashed on this page. Now I can't recognize some of these numbers, and Camp has my source documents."

Knowing how important this statement is to your roommate, you're eager to see what can be done. "Let me see that," you offer. "I think we can figure this out." The statement of cash flows and income statement are intact. The reconciliation schedule and the comparative balance sheets are perfect examples.

Analysis Case 21-5
 Synthesize information
 missing amounts

• C.J. 15-104

DISTINCTIVE INDUSTRIES
Statement of Cash Flows
For the Year Ended December 31, 2006
 (In millions)

| | |
|--|--------------|
| Cash Flows from Operating Activities | |
| Collections from customers | \$273 |
| Payments to suppliers | (90) |
| Payment of general & administrative expenses | (54) |
| Payment of income taxes | (27) |
| Cash flow from operating activities | \$42 |
| Cash Flows from Investing Activities | |
| Sale of equipment | 20 |
| Cash Flows from Financing Activities | |
| Issuance of common stock | 30 |
| Payment of dividends | (9) |
| Net cash flows from financing activities | 21 |
| Net increase in cash | \$163 |
| Reconciliation of net income to cash flows from operating activities: | |
| Net income | \$ 84 |
| Adjustments for noncash items: | |
| Depreciation expense | |

Net cash flows from operating activities 1

DISTINCTIVE INDUSTRIES
Income Statement
For the Year Ended December 31, 2006

| | |
|----------------------------|--------------|
| Sales revenue | \$280 |
| Cost of goods sold | 96 |
| Gross profit | 184 |
| Selling expenses | |
| General and administrative | \$54 |
| Depreciation | 30 |
| Total operating expenses | 84 |
| Operating income | 100 |
| Interest expense | |
| Gain on sale of equipment | 15 |
| Income before income taxes | 105 |
| Income tax expense | 21 |
| Net income | \$ 84 |

DISTINCTIVE INDUSTRIES
Comparative Balance Sheets
At December 31

| | 2006 | 2005 |
|---|----------|----------|
| Assets | | |
| Cash | \$360 | □ |
| Accounts receivable (net) | 1 | 252 |
| Inventory | 160 | □ |
| Property, plant, & equipment | 450 | 100 |
| Less: Accumulated depreciation | (120) | □ |
| Total assets | □ | □ |
| Liabilities and shareholders' equity | | |
| Accounts payable | \$120 | \$ 90 |
| General and administrative expenses payable | 27 | 27 |
| Income taxes payable | 66 | □ |
| Common stock | 720 | 690 |
| Retained earnings | □ | 141 |
| Total liabilities and shareholders' equity | □ | □ |

Real World Case 21-4
Analyze cash flow
activities: Cingular
Wireless

■ See through C16

Required

1. Determine the missing amounts.
2. Reconcile the recapitulation of net income to cash flows from operating activities (operating cash flows using the indirect method).

1. Cingular Wireless is the largest wireless company in the United States, with more than 50 million subscribers who use the nation's largest digital voice and data network.

| (\$ in millions) | 2002 | 2003 | 2004 |
|--|----------------|-----------------|-----------------|
| Operating Activities | | | |
| Net income | \$1,173 | \$ 977 | \$ 205 |
| Adjustments to reconcile net income to net cash provided by operating activities | | | |
| Depreciation and amortization | 1,549 | 2,089 | 1,377 |
| Provision for doubtful accounts | 404 | 259 | 423 |
| Asset impairments | 131 | — | 4 |
| Minority interest in earnings of consolidated entities | 123 | 101 | 86 |
| Equity in net loss of affiliates | 274 | 333 | 415 |
| Comprehensive effect of an accounting change, net of tax | 22 | — | — |
| Amortization of debt discount (premium), net | — | 1 | 43 |
| Deferred income taxes | 31 | 3 | (4) |
| Changes in operating assets and liabilities | | | |
| Accounts receivable | (240) | (231) | (236) |
| Inventories | 63 | (147) | (189) |
| Other current assets | (42) | (83) | (18) |
| Accounts payable and other current liabilities | (415) | 278 | (512) |
| Pensions and post-employment benefits | 9 | 55 | 88 |
| Other net | 167 | 155 | 198 |
| Net cash provided by operating activities | 3,392 | 3,086 | 2,320 |
| Investing Activities | | | |
| Construction and capital expenditures | 3,785 | (7,34) | (3,449) |
| Investments in and advances to equity affiliates, net | (650) | (616) | (422) |
| Dispositions of assets | 6 | 7 | 188 |
| Acquisition of AT&T Wireless and other businesses | — | — | (35,543) |
| Acquisition of other businesses and assets, net | 16 | (25) | 1,632 |
| Capital expenditures, net | (50) | — | — |
| Purchases of held-to-maturity investments | — | — | 249 |
| Net cash used in investing activities | (3,383) | (3,328) | (41,077) |
| Financing Activities | | | |
| Net borrowings under revolving credit agreements | — | — | 1,067 |
| Net repayment of commercial paper | (27) | — | — |
| Net repayment of long-term debt | (59) | (64) | (530) |
| Repayment of long-term debt due in 2005 | — | — | 150 |
| Net distributions to minority interests | (79) | 33 | 41 |
| Contributions from members | 899 | 10 | 36,074 |
| Net cash provided by (used in) financing activities | 734 | (87) | 16,972 |
| Net increase (decrease) in cash and cash equivalents | 743 | 231 | 187 |
| Cash and cash equivalents at beginning of period | 567 | 808 | 30 |
| Cash and cash equivalents at end of period | \$ 909 | \$ 1,039 | \$ 317 |

Required:

1. In the three years reported, what were Cingular's primary investing activities? How were these activities financed? Be specific.
2. During the most recent fiscal year, Cingular purchased certificates of deposit. How were these purchases reported in the statement of cash flows? (Note: This is not an investing activity.)
3. How are increases of debt securities and decreases of equity securities classified in a statement of cash flows?
4. How are payments to investors in debt securities (bonds) and payments to investors in equity securities (dividends) classified in a statement of cash flows? Is this a conceptual inconsistency? Explain.
5. Cingular's statement of cash flows reports expenditures for acquisition of businesses. It also reports the purchase of debt securities. Suppose the businesses had been acquired, not with cash, but by exchange for debt securities. Would such a transaction be reported? Explain.

Real World Case 21-7
Where's the cash?

■ See through C16

After graduating near the top of his class, Ben Nagle was hired by the local office of a Big 4 CPA firm as a tax intern. Two years later, impressed with his technical skills and experience, Park Electronics, a large regional consumer electronics chain, hired Ben as assistant controller. This was no work. Now Ben's local government has turned to distress.

The cause of Ben's distress is the set of financial statements he's stared at for the last four hours. For some time prior to his commitment, he had been aware of the long trend of moderate profitability of his new employer. The reports on his desk yesterday, though, had already, improvements in net income in some years. The trend he was just now becoming aware of through with the decline in cash flows from operations. Ben had sketched out the following comparison (\$ in millions):

| | 2006 | 2005 | 2004 | 2003 |
|---------------------------|---------|---------|---------|---------|
| Income from operations | \$140.0 | \$142.4 | \$127.5 | \$127.0 |
| Net income | \$8.5 | \$5.5 | \$4.5 | \$9.5 |
| Cash flow from operations | 1.0 | 17.0 | 12.0 | 15.5 |

Profits? Yes. Increasing profits? Yes. The cause of his distress? The notorious trend in cash flow which is consistently lower than net income.

Upon closer review, Ben noticed that even in the last two years that, unfortunately, seemed related:

- Park's credit policy had been loosened, credit terms were relaxed, and payment periods were cut short.
- Accounts receivable turnover had increased dramatically.
- Several of the company's compensation arrangements, including that of the controller and the company president, were based on reported net income.

Ben said:

"What is so odd about the combination of events Ben sees?"

- What course of action, if any, should Ben take?

How did Cash Flow from operations despite these factors?

•

"I've been reading that the airline industry is having money problems—big losses and budget cuts," said Mae Del Conte as you walked with her to the library. "How is it, then, that I hear on the radio this morning that Northwest Airlines had \$270 million cash flow from its operations last year?" Curious, the two of you stop by a computer terminal on the way to the reference section and do a quick search. A few clicks later you're looking at the operating activities section of Northwest's 2004 cash flow statement:

| (\$ in millions) | Year Ended December 31 | | |
|---|------------------------|-------|-------|
| | 2004 | 2003 | 2002 |
| Cash flows from Operating Activities | | | |
| Net income loss | \$1802 | \$245 | \$198 |
| Adjustment to reconcile net income loss to a cash provided by operating activities: | | | |
| Depreciation and amortization | 931 | 584 | 901 |
| Increase (or decrease) in deferred income tax expense | 31 | 309 | 422 |
| Net receipts (payments) of income taxes | 31 | 215 | 22 |
| Pension and other postretirement benefit contributions less their expense | 190 | 91 | 39 |
| Net loss (earnings) of affiliates | 31 | 85 | 171 |
| Net loss (gain) on disposition of property, equipment, and other | (95) | 708 | 0 |
| Change in: | | | |
| Changes in certain assets and liabilities: | | | |
| Decrease (increase) in accounts receivable | 46 | (20) | 21 |
| Decrease (increase) in flight equipment and other | 2 | 3 | 14 |
| Decrease (increase) in supplies, prepaid expenses and other | (60) | 25 | (6) |
| Increase (decrease) in operating liability | 19 | 50 | 21 |
| Increase (decrease) in accounts payable | 27 | (31) | 1 |
| Increase (decrease) in other liabilities | 19 | | (64) |
| Increase (decrease) in accrued liabilities | 0 | 31 | 40 |
| Cash provided by operating activities | 1,451 | 1,395 | 1,554 |

Required:

- Without regard to Northwest specifically, explain to Ben the difference between net income or loss and cash flows from operating activities.
- What is the major contributor to Northwest having positive cash flows from operating activities despite a net loss in 2004?
- Why did Northwest subtract \$95 million in the determination of cash flows from operating activities for the gain on disposition of assets?

Research page 21-9 Researching the way cash flows are reported; get primary information from the Internet

• 103 through 108

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, index- ing, dissemination, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). All publicly traded domestic companies use EDGAR to make the majority of their filings. Filings by foreign companies are not required to be filed on EDGAR, but some of these companies do so voluntarily. Form 10-K, which includes the annual report, is required to be filed on EDGAR. The SEC makes this information available on the Internet.

Required

1. Access EDGAR on the Internet. The web address is www.sec.gov or us.edgarinvestor.gov/global.com.
2. Search for a public company with which you are familiar. Access its most recent 10-K filing. Search or scroll to find the statement of cash flows and related notes.
3. In the notes to the statement of cash flows, identify one of the adjustments. What is the large adjustment to net income or net loss for this adjustment? Is the adjustment to the income or loss?
4. What are the cash payments for interest and for taxes?
5. What has been the most significant investing activity for the company in the three-year period?
6. What has been the most significant financing activity for the company in the three-year period?

Repeat requirements 2-6 for another company.

Analysis Case 21-10 Analyzing the way cash flow activities

• 103 through 108

FedEx Corporation

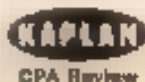
Refer to the financial statements and related disclosures notes of FedEx Corporation in Appendix B at the end of the work. Notice that financing activities resulted in a net cash outflow in each of the three years reported. Investing activities have required large and increasing amounts of cash over the same period.

Required

1. From the information provided in the statement of cash flows, explain what allows FedEx Corporation to expand its business as evidenced by the investing activities, while at the same time not raising its funds, obtaining cash through financing activities for two of the three years shown.
2. Describe the six activities listed under financing activities for the 2004 fiscal year. How FedEx's Statement of Changes in Common Stockholders' Investment (statement of shareholders' equity) will help you determine the nature of the stock activity. What is the most probable financing activity?
3. What are the cash payments FedEx made for interest and for income taxes in two of the three years reported? How? See the disclosure notes.

CPA SIMULATION 21-1

Ark Company
Statement of Cash Flows



Test your knowledge of the concepts discussed in this chapter, practice critical professional skills necessary for career success, and prepare for the computer-based CPA exam by accessing the CPA simulations on the text website: www.mhhe.com/cpaexam.

The Ark Company simulation tests your knowledge as a user of statement of cash flows recording notes.

As on the CPA exam itself, you will be asked to use tools including a spreadsheet, a calculator, and the external accounting standards to provide the correct answer and to formulate conclusions relative to these issues in a computer environment. Click on the following number to go to:



Financial Accounting and Reporting

14- TFP 1127



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14- TFP 1127

Specific tasks in the simulation include:

- Analyzing actual transactions to determine their related cash flows.
- Applying judgment in deciding the appropriate financial statement classification of various cash flows.
- Calculating cash flows from operations.
- Determining cash flows from investing activities.
- Communicating the definition and role of cash equivalents.
- Researching the disclosure requirements for the direct and indirect method of reporting operating activities.

Derivatives

A derivative is a financial instrument whose value is derived from the value of an underlying asset, security, or index. Derivatives are used to hedge risk, speculate on price movements, and transfer risk between parties.

Derivatives are valued as tools to manage or hedge companies' existing exposures to risk, including interest rate risk, price risk, and foreign exchange risk. The variety, complexity, and magnitude of derivatives have grown rapidly in recent years. Tens of millions of dollars in derivative contracts are used every year. Accounting standard-setters have scrambled to keep pace.

A persistent stream of headline stories has alerted us to small million-dollar losses by **Dell Computer**, **Fraser & Gamble**, **Gibson Greetings**, and **Orange County** (California), to name a few. Focusing on these headlines, it would be tempting to conclude that derivatives are risky business indeed. Certainly they can be quite risky, if misused, but the fact is, these financial instruments exist to lessen, not increase, risk. Properly used, they serve as a form of "insurance" against risk. In fact, if a company is exposed to a substantial risk and does not hedge that risk, it is taking a gamble. On the other hand, if a derivative is used improperly, it can be a huge gamble itself.

Derivatives Used to Hedge Risk

Hedging means taking an action that is expected to produce exposure to a particular type of risk that is precisely the opposite of an actual risk to which the company already is exposed. For instance, the volatility of interest rates creates exposure to an interest-rate risk for companies that issue debt—which, of course, includes most companies. So, a company that frequently arranges short-term loans from its bank under a floating (variable) interest rate agreement is exposed to the risk that interest rates might increase and adversely affect its borrowing costs. Similarly, a company that regularly reissues commercial paper as it matures faces the possibility that new rates will be higher and cut into forecasted income. When borrowings are large, the potential cost can be substantial. So, the firm might choose to hedge its position by entering into a transaction that would produce a gain of roughly the same amount as the potential loss if interest rates did, in fact, increase.

Hedging is used to deal with three areas of risk exposure: fair value risk, cash flow risk, and foreign currency risk. Let's look at some of the more common derivatives.

FINANCIAL FUTURES

A futures contract is an agreement between a seller and a buyer that requires the seller to deliver a particular commodity (say corn, gold, or pork bellies) at a designated future date, at a predetermined price. These contracts are actively traded on regulated futures exchanges. When the "commodity" is a financial instrument such as a Treasury bond, Treasury bill, commercial paper, or a certificate of deposit, the agreement is referred to as a financial future.

A futures contract allows a firm to sell a security or index at a predetermined price.

A futures contract allows a firm to sell a security or index at a predetermined price.

A futures contract allows a firm to sell a security or index at a predetermined price.

Derivatives are used to hedge risk, speculate on price movements, and transfer risk between parties.

To appreciate the way these hedges work, you need to remember that when interest rates rise, the market price of interest-bearing securities goes down. For instance, if you have an investment in a 10% bond and market interest rates go up to, say, 12%, your 10% bond is less valuable relative to other bonds paying the higher rate. Conversely, when interest rates decline, the market price of interest-bearing securities goes up. This risk that the investment's value might change is referred to as *fair value* risk. The company that issued the securities is faced with fair value risk also. If interest rates decline, the fair value of the company's debt would rise, a risk the borrower may want to hedge against. Later in this section, we'll look at an illustration of how the borrower would account for and report such a hedge.

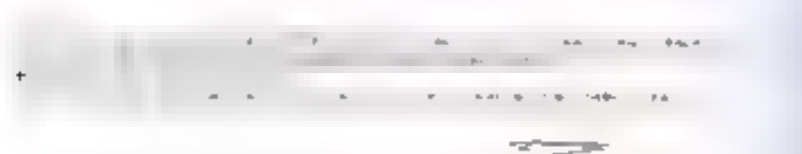
Now let's look at the effect on a borrower of sell or buy securities (or any asset for that matter) at preset prices. One who is obligated to sell securities at a preset price after their market price has fallen, benefits from the rise in interest rates. Consequently, the value of the contract that gives one the right to sell securities at a preset price goes up as the market price declines. The seller in a futures contract derives a gain (loss) when interest rates rise (decline).³ Conversely, the one obligated to buy securities at a preset price experiences a loss. This risk of having to pay more cash or receive less cash is referred to as *cash flow* risk.

Another example of cash flow risk would be borrowing money by issuing a variable (floating) rate note. If market interest rates rise, the borrower would have to pay more interest. Similarly, the lender (investor) in the variable (floating) rate debt investment would face cash flow risk that interest rates would decline, resulting in lower cash interest receipts.

Let's look closer at how a futures contract can mitigate cash flow risk. Consider a company on April 1 that will replace its \$10 million of 8.5% bank notes when they mature in June. The company is exposed to the risk that interest rates in June will have risen, increasing borrowing costs. To counteract that possibility, the firm might enter a contract in April to deliver (sell) bonds in June at their *current* price. Since there are no corporate bond futures contracts, the company buys Treasury bond futures, which will accomplish essentially the same purpose. In essence, the firm agrees to sell Treasury bonds in June at a price established now (April). Let's say it's April 6 and the price of Treasury bond futures on the International Monetary Market of the Chicago Mercantile Exchange is quoted as 95.24.⁴ Since the trading unit of Treasury bond futures is a 3-year \$100,000, 8% Treasury bond, the company might sell 115 Treasury bond futures to hedge the June issuance of debt. This would effectively provide a hedge of $115 \times \$100,000 \times 95.24\% = \$10,953,000$.

Here's what happens then. If interest rates rise, borrowing costs will go up for our example company because it will have to sell debt securities at a higher interest cost (or lower price). But that loss will be offset (approximately) by the gain produced by being in the opposite position on Treasury bond futures. Take note, though, this works both ways. If interest rates go down causing debt security prices to rise, the potential benefit of being able to issue debt at the lower interest rate (higher price) will be offset by a loss on the futures position.

A very important point about futures contracts is that the seller does not need to have actual possession of the commodity (the Treasury bonds, in this case), nor is the purchaser of the contract required to take possession of the commodity. In fact, virtually all transactions for futures contracts are "netted out" before the actual transaction is to take place. This is simply a matter of reversing the original position. A seller closes out her transaction with a purchase. Likewise, a purchaser would close out her transaction with a sale. After all, the objective is not to actually buy or sell Treasury bonds (or whatever the commodity might be), but to avoid the financial impact of movements in interest rates as reflected in changes in Treasury bond prices. Specifically, it will buy at the lower price (to reverse the original seller position) at the same time it is selling its new bond issue at that same lower price. The financial futures market is an "artificial" exchange in that its reason for existing is to provide a mechanism to transfer risk from those exposed to it to those willing to accept the risk, not to actually buy and sell the underlying financial instruments.



If the underlying debt issue being hedged is a short-term issue, the company may obtain a more effective hedge by selling Treasury bill futures since Treasury bills are 90-day securities, or maybe certificate of deposit (CD) futures (that also are traded in futures markets). The object is to get the closest association between the financial effects of interest rate movements on the actual transaction and the effects on the financial instrument used as a hedge.

FINANCIAL FORWARD CONTRACTS

A forward contract is similar to a futures contract but differs in three ways:

1. A forward contract calls for delivery on a single future date, whereas a futures contract permits the seller to decide later which specific day within the specified month will be the delivery date (if it gets as far as actual delivery before it is closed out).
2. Unlike a futures contract, a forward contract usually is not traded on a market exchange.
3. Unlike a futures contract, a forward contract does not call for a daily cash settlement for price changes in the underlying contract. Gains and losses on forward contracts are paid only when they are closed out.

OPTIONS

Options frequently are purchased to hedge exposure to the effects of changing interest rates. Options serve the same purpose as futures in that respect but are fundamentally different. An option on a financial instrument—say a Treasury bill—gives its holder the right either to buy or to sell the Treasury bill at a specified price and within a given time period. Importantly though, the option holder has no obligation to exercise the option. On the other hand, the holder of a futures contract must buy or sell within a specified period unless the contract is closed out before delivery comes due.

FOREIGN CURRENCY FUTURES

Foreign loans frequently are denominated in the currency of the lender: Japanese yen, Swiss franc, Euro, and so on. When loans must be repaid in foreign currencies, a new element of risk is introduced. This is because if exchange rates change, the dollar equivalent of the foreign currency that must be repaid differs from the dollar equivalent of the foreign currency borrowed.

To hedge against "foreign exchange risk" exposure, some firms buy or sell foreign currency futures contracts. These are similar to financial futures except specific foreign currencies are specified in the futures contracts rather than specific debt instruments. They work the same way to protect against foreign exchange risk as financial futures protect against their value or cash flow risk.

INTEREST RATE SWAPS

Over 70% of derivatives are interest rate swaps. These contracts exchange fixed interest payments for floating rate payments, or vice versa, without exchanging the underlying principal amounts. For example, suppose you owe \$10,000 on a 10% fixed rate home loan. You envy your neighbor who also is paying 10% on her \$100,000 mortgage, but hers is a floating rate loan, so if market rates fall, so will her loan rate. In the contrary, she is envious of your fixed rate, fearful that rates will rise, increasing her payments. A solution would be for the two of you to effectively swap interest payments using an interest rate swap agreement. The way a swap works, you both would continue to actually make your own interest payments, but would exchange the net cash difference between payments at specified intervals. So, in this case, if market rates (and thus floating payments) drop, you would pay your neighbor if rates fall, she pays you. The net effect is to exchange the consequences of rate changes. In other words, you have effectively converted your fixed-rate debt to floating-rate debt; your neighbor has done the opposite.

Of course, this technique is not dependent on happening into such a fortuitous pairing of two borrowers with opposite philosophies on interest rate risk. Instead, banks or other financial intermediaries offer, for a fee, one-sided swap agreements to corporations desiring to be either fixed-rate payers or variable-rate payers. Intermediaries usually strive to maintain a balanced portfolio of matched, offsetting swap agreements.

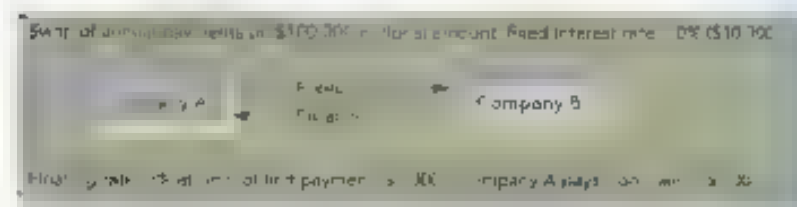
With the use of derivatives, a company can hedge its exposure to interest rate risk. For example, a company can use Treasury bill futures to hedge its exposure to interest rate risk.

Foreign currency futures contracts are often used to hedge foreign exchange risk. For example, a company can use foreign currency futures to hedge its exposure to foreign exchange risk.

Interest rate swaps are used to exchange fixed interest payments for floating rate payments, or vice versa, without exchanging the underlying principal amounts. For example, a company can use interest rate swaps to hedge its exposure to interest rate risk.

Theoretically, the two parties to such a transaction exchange principal amounts, say the \$10,000 amount above, in addition to the interest on those amounts. This makes no practical sense, though, for the companies to send each other \$100,000. So, instead, the principal amount is not actually exchanged, but serves merely as the computational base for interest calculations and is called the *notional amount*. Similarly, the fixed-rate payer does not actually send the entire fixed interest amount (say $10\% \times \$100,000 = \$10,000$) and receive the entire variable interest amount (say $9\% \times \$100,000 = \$9,000$). Generally, only the net amount (\$1,000 in this case) is exchanged. This is illustrated in Graphic A-1.

Graphic A-1
Interest Rate Swap



From an accounting standpoint, the central issue is not the operational differences among various hedge instruments, but their similarity in functioning as hedges against risk.

Accounting for Derivatives

A key to accounting for derivatives is knowing the purpose for which a company holds them and whether the company is effective in serving that purpose. Derivatives, for instance, may be held for risk management (hedging activities). The desired effect, and often the real effect, is a reduction in risk. On the other hand, derivatives sometimes are held for speculative position taking, hoping for large profits. The effect of this activity usually is to increase risk. Perhaps more important, derivatives acquired as hedges and intended to reduce risk may, in fact, unintentionally increase risk instead.

It's important to understand that, serving as investments rather than as hedges, derivatives are extremely speculative. This is due to the high leverage inherent in derivatives. Here's why. The investment outlay usually is negligible, but, the potential gain or loss on the investment usually is quite high. A small change in interest rates or another underlying event can trigger a large change in the fair value of the derivative. Because the initial investment was minimal, the change in value relative to the investment itself represents a huge percentage gain or loss. Accounting for derivatives is designed to treat differently (a) derivatives designated as hedges and those not designated as hedges as well as (b) the effective portion and the ineffective portion of gains and losses from intended hedges.

The basic approach to accounting for derivatives is fairly straightforward, although implementation can be quite cumbersome. All derivatives, no exceptions, are carried on the balance sheet as either assets or liabilities at fair (or market) value.⁶ The reasoning is that (a) derivatives create either rights or obligations that meet the definition of assets or liabilities, and (b) fair value is the most meaningful measurement.

Accounting for the gain or loss on a derivative depends on how it is used. Specifically, if the derivative is not designated as a hedging instrument, or doesn't qualify as one, any gain or loss from fair value changes is recognized immediately in earnings. On the other hand, if a derivative is used to hedge against exposure to risk, any gain or loss from fair value changes is either (a) recognized immediately in earnings along with an offsetting loss or gain on the item being hedged or (b) deferred as comprehensive income until it can be recognized in earnings as the same time as earnings are affected by a hedged transaction. Which way

Accounting for derivatives

1. Identify the derivative instrument.
2. Determine the fair value of the derivative instrument.
3. Determine the gain or loss on the derivative instrument.

Accounting for derivatives

1. Identify the derivative instrument.
2. Determine the fair value of the derivative instrument.
3. Determine the gain or loss on the derivative instrument.

Accounting for derivatives

1. Identify the derivative instrument.
2. Determine the fair value of the derivative instrument.
3. Determine the gain or loss on the derivative instrument.

depends on whether the derivative is designated as a (a) fair value hedge, (b) cash flow hedge, or (c) foreign currency hedge. Let's look now at each of the three hedge designations.

FAIR VALUE HEDGES

A company can be adversely affected when a change in either prices or interest rates causes a change in the fair value of one of its assets, its liabilities, or a commitment to buy or sell assets or liabilities. If a derivative is used to hedge against the exposure to changes in the fair value of an asset or liability or a firm commitment, it can be designated as a fair value hedge. In that case, when the derivative is adjusted to reflect changes in fair value, the other side of the entry recognizes a gain or loss to be included currently in earnings. At the same time, though, the loss or gain from changes in the fair value (due to the risk being hedged) of the item being hedged also is included currently in earnings. This means that, to the extent the hedge is effective in serving its purpose, the gain or loss on the derivative will be offset by the loss or gain on the item being hedged. In fact, this is precisely the concept behind the procedure.

The reasoning is that as interest rates or other underlying events change, a hedge instrument will produce a gain approximately equal to a loss on the item being hedged (or vice versa). These income effects are incremental and offsetting, and would be improper to report the income effects in different periods. More critically, the intent and effect of having the hedge instrument is to lessen risk. And yet, recognizing gains in one period and counterbalancing losses in another period would tend to cause fluctuations in income that convey an *exaggerated* risk. However, to the extent that a hedge is ineffective and produces gains or losses different from the losses or gains being hedged, the ineffective portion is recognized in earnings immediately.

Some of the more common fair value hedges are

- An interest rate swap to synthetically convert fixed-rate debt (for which interest rate changes could change the fair value of the debt) into floating-rate debt.
- A futures contract to hedge changes in the fair value (due to price changes) of aluminum, sugar, or some other type of inventory.
- A futures contract to hedge the fair value (due to price changes) of a firm commitment to sell certain goods or some other asset.

ILLUSTRATION

Because interest rate swaps comprise over 70% of derivatives in use, we will use swaps to illustrate accounting for derivatives. Let's look at the example in Illustration A-1 on the next page.

When the floating rate declined from 10% to 9%, the fair values of both the derivative (swap) and the note increased. This caused an offsetting gain on the derivative and holding loss on the note. Both are recognized in earnings at the same time (at June 30, 2006).

| | | |
|---------------------------------------|---------|---------|
| January 1, 2006 | | |
| Cash | 100,000 | |
| Premium payable | | 700,000 |
| To record the issuance of the note | | |
| June 30, 2006 | | |
| Interest expense (9% × \$1 million) | 50,000 | |
| Cash | | 50,000 |
| To record interest | | |
| Gain on derivative (1% × \$1 million) | 5,000 | |
| Premium payable | | 5,000 |
| To record the net cash settlement | | |

A gain on the derivative is recorded when the swap is settling. The premium payable is an offsetting entry to the gain on the swap.

The net income effect of the business is to recognize an interest expense of \$50,000 and a gain on the swap of \$5,000, for a net expense of \$45,000.

The net income effect of the business is to recognize a holding loss on the note of \$50,000.

The swap is a derivative instrument that is used to hedge the fixed interest (8%) and variable interest (4.89%).

In the illustration, the company has a \$1 million note with a fixed interest rate of 8% and a variable interest rate of 4.89%. The company has a swap that pays a fixed interest rate of 8% and receives a variable interest rate of 4.89%.

Illustration A-1 Interest Rate Swap

Wintel Semiconductor issued \$1 million of 18-month, 10% bank notes on January 1, 2006. Wintel is exposed to the risk that general interest rates will decline, causing the fair value of its debt to rise. It can adjust its fair value only by issuing a new issue of debt at a higher interest rate in the market. To cope with this risk, Wintel enters the interest rate swap agreement with a bank. The swap agreement is a contract to exchange the right to receive the fair value of the debt for the right to pay the fair value of the debt. The swap is entered into by the company on receipt of the bank's offer of a swap. The swap is entered into for an amount of \$1 million and is more or less a floating rate swap. The swap is entered into for an amount of \$1 million and is more or less a floating rate swap. The swap is entered into for an amount of \$1 million and is more or less a floating rate swap. As the illustration will show, this effectively converts Wintel's fixed-rate debt to floating-rate debt. Cash settlement of the net interest amount is made semiannually on June 30 and December 31 of each year with the net interest being the difference between the \$50,000 fixed interest (\$1 million \times 5%) and the floating interest rate times \$1 million at those dates.

Floating (market) settlement rates were 1% at June 30, 2006, 8% at December 31, 2006, and 9% at June 30, 2007. Net interest receipts can be calculated as shown below. Fair values of both the debt and the swap result from those market rates. Changes are assumed to be quotes obtained from swap dealers.

| | 12/30/05 | 6/30/06 | 12/31/06 | 6/30/07 |
|---|-------------|--------------|--------------|--------------|
| Fixed rate | 10% | 10% | 10% | 10% |
| Floating rate | 1% | 8% | 8% | 9% |
| Fixed payments
(\$1 million \times 10% \times 1/2) | | \$ 50,000 | \$ 50,000 | \$ 50,000 |
| Floating payments
(\$1 million \times 1/2 floating rate) | | 45,000 | 40,000 | 45,000 |
| Net interest receipts | | \$ 5,000 | \$ 10,000 | \$ 5,000 |
| Fair value of interest rate swap | | \$ 9,363 | \$ 0,615 | 0 |
| Fair value of note payable | \$1,000,000 | \$ 1,009,363 | \$ 1,009,615 | \$ 1,000,000 |

The fair value of the swap is the difference between the fair value of the debt and the fair value of the note payable.

The hedged liability (or asset) is adjusted to fair value as well.

As with the debt, the effective rate times the outstanding balance

The fair value of the swap is the difference between the fair value of the debt and the fair value of the note payable.

The fair value of the swap is the difference between the fair value of the debt and the fair value of the note payable.

The fair value of the swap is the difference between the fair value of the debt and the fair value of the note payable.

| | | | | |
|---|--|--|----------|-------|
| Interest rate swap (\$9,363 - 0) | | | \$ 9,363 | |
| Holding gain—interest rate swap | | | | 9,363 |
| To record change in fair value of the derivative | | | | |
| Holding loss—hedged note | | | \$ 9,363 | |
| Note payable (\$1,009,363 - 1,000,000) | | | | 9,363 |
| To record change in fair value of the note due to interest rate changes | | | | |

The net interest settlement on June 30, 2006, is \$5,000 because the fixed rate is 5% (half of the 10% annual rate) and the floating rate is 1.5% (half of the 3% annual rate).

| | | | |
|---|--|--------|--------|
| December 31, 2006 | | | |
| Interest expense | | 50,000 | |
| Cash paid (\$1 million \times 10% \times 1/2) | | | 50,000 |
| To record interest | | | |
| Cash received (\$1 million \times 8% \times 1/2) | | 40,000 | |
| Interest expense | | | 40,000 |
| To record the net cash settlement | | | |
| Interest rate swap (\$9,615 - 9,363) | | 252 | |
| Holding gain—interest rate swap | | | 252 |
| To record the change in fair value of the derivative | | | |
| Holding loss—hedged note | | 252 | |
| Note payable (\$1,009,615 - 1,009,363) | | | 252 |
| To record the change in fair value of the note due to interest rate changes | | | |

The fair value of the swap is the difference between the fair value of the debt and the fair value of the note payable.

The fair value of the swap increases by \$252 (from \$9,363 to \$9,615). Similarly, we adjust the note's carrying value by the amount necessary to increase it to fair value. This produces a holding loss on the note that exactly offsets the gain on the swap. This results in the hedging effect that motivated Winter to enter the fair value hedging arrangement in the first place.

At June 30, 2007, Winter repeats the process of adjusting to fair value both the derivative investment and the note being hedged.

| | | |
|---|-------------|-----------|
| June 30, 2007 | | |
| Interest expense | | 5,000 |
| Cash (5% × \$1,000,000) | | 50,000 |
| To record interest | | |
| Cash | \$ received | 5,000 |
| Interest expense | | 5,000 |
| To record the net cash settlement | | |
| Holding gain—interest rate swap | | 9,615 |
| Interest rate swap (\$1,000,000) | | 9,615 |
| To record the change in fair value of the derivative | | |
| Note payable (\$1,000,000 @ 6%) | | 9,615 |
| Holding gain—hedged note | | 9,615 |
| To record the change in fair value of the note due to interest rate changes | | |
| Note payable | | 1,000,000 |
| On | | 1,000,000 |
| To record the loan | | |

The net interest received is the difference between the fixed interest rate of 5% and floating interest rate of 6%.

The swap's fair value now is zero.

The net interest received is the difference between the fixed rate (5%) and floating rate (6%) times \$1 million. The fair value of the swap decreased by \$9,615 (from \$9,615 to zero).¹⁰ That decline represents a holding loss that we recognize in earnings. Similarly, we record an offsetting holding gain on the note for the change in its fair value.

Now let's see how the carrying values changed for the swap account and the note.

| | Swap | Note |
|---------------|-------|-----------|
| Jan 1, 2006 | | 1,000,000 |
| June 30, 2006 | 9,363 | 9,363 |
| Dec 31, 2006 | 252 | 252 |
| June 30, 2007 | 9,615 | 9,615 |
| | | 1,000,000 |
| | | 0 |

The income statement is affected as follows:

| Income Statement (in \$) | | |
|--------------------------|----------|--|
| June 30, 2006 | (50,000) | Interest expense—fixed (payment) |
| | 5,000 | Interest expense—net (settlement) |
| | 9,363 | Holding gain—interest rate swap |
| | (9,363) | Holding loss—hedged note |
| | (45,000) | Net effect—same as paying interest payment |
| Dec 31, 2006 | (50,000) | Interest expense—fixed (payment) |
| | 0,000 | Interest expense—net (settlement) |
| | 252 | Holding gain—interest rate swap |
| | (252) | Holding loss—hedged note |
| | (40,000) | Net effect—same as paying interest payment |
| June 30, 2007 | (50,000) | Interest expense—fixed (payment) |
| | 5,000 | Interest expense—net (settlement) |
| | 9,615 | Holding gain—interest rate swap |
| | (9,615) | Holding loss—hedged note |
| | (85,000) | Net effect—same as paying interest payment |

Because the swap and note are both hedged, the net swap arrangement is not reported in the fair value of assets and liabilities.

Amortized hedges result in part of derivative gain or loss being included in earnings.

Items hedged are ignored.

arrangement had been ineffective. For instance, suppose the swap's term had been different from that of the note (say a three-year swap term compared with the 18-month term of the note) or if the notional amount of the swap differed from that of the note (say \$500,000 rather than \$1 million). In that case, changes in the fair value of the swap and changes in the fair value of the note would not be the same. The result would be a greater (or lesser) amount recognized in earnings for the swap than for the note. Because there would not be an exact offset, earnings would be affected, an effect resulting from hedge ineffectiveness. That is a desired effect of hedge accounting, so the claim that a hedge is effective, the earnings effect of a derivative cancels out the earnings effect of the item being hedged. However, even if a hedge

FAIR VALUE CHANGES UNRELATED TO THE RISK BEING HEDGED

In Illustration A-1, the fair value of the hedged note and the fair value of the swap changed by the same amounts each year because we assumed the fair values changed only due to interest rate changes. It's also possible, though, that the note's fair value would change by an amount different from that of the swap for reasons unrelated to interest rates. Remember from our earlier discussion that the market's perception of a company's creditworthiness, and thus its ability to pay interest and principal when due, also can affect the value of debt, whether interest rates change or not. In hedge accounting, we ignore those changes. We recognize only the fair value changes in the hedged item that we can attribute to the risk being hedged (interest rate risk in this case). For example, if a changing perception of default risk had caused the note's fair value to increase by an additional, say \$5,000, our journal entries in Illustration A-7 would have been unaffected. Notice, then, that although we always mark a derivative to fair value, the reported amount of the item being hedged may not be its fair value. We mark a hedged item to fair value only to the extent that its fair value changed due to the risk being hedged.

Disclosure of Derivatives and Risk

To be adequately informed about the adequacy of a company's risk management, investors and creditors need information about strategies for holding derivatives and specific hedging activities. Toward that end, extensive disclosure requirements provide information that includes:

- Objectives and strategies for holding and issuing derivatives.
- A description of the items for which risks are being hedged.
- For forecasted transactions, a description, time before the transaction is expected to occur, the gains and losses accumulated in other comprehensive income, and the events that will trigger their recognition in earnings.
- Beginning balance of, changes in, and ending balance of the derivative component of other comprehensive income.
- The net effect on earnings of hedge ineffectiveness, as measured by aggregate hedge ineffectiveness.
- Qualitative and quantitative information about failed hedges, canceled commitments or previously hedged forecasted transactions no longer expected to occur.

The intent is to provide information about the company's success in reducing risks and managing about risk that the *Financial Reporting Requirements* can achieve. Ample disclosures about derivatives are essential to maintain awareness of potential opportunities and problems with risk management.

Even for some traditional liabilities, the amounts reported on the face of the financial statements provide inadequate disclosure about the degree to which a company is exposed to risk of loss. To provide adequate disclosure about a company's exposure to risk, additional information must be provided about (a) concentrations of credit risk and (b) the fair value of all financial instruments.⁴⁵

⁴⁵ See *Financial Reporting Requirements*, 104.4.10, 104.4.11, 104.4.12, 104.4.13, 104.4.14, 104.4.15, 104.4.16, 104.4.17, 104.4.18, 104.4.19, 104.4.20, 104.4.21, 104.4.22, 104.4.23, 104.4.24, 104.4.25, 104.4.26, 104.4.27, 104.4.28, 104.4.29, 104.4.30, 104.4.31, 104.4.32, 104.4.33, 104.4.34, 104.4.35, 104.4.36, 104.4.37, 104.4.38, 104.4.39, 104.4.40, 104.4.41, 104.4.42, 104.4.43, 104.4.44, 104.4.45, 104.4.46, 104.4.47, 104.4.48, 104.4.49, 104.4.50, 104.4.51, 104.4.52, 104.4.53, 104.4.54, 104.4.55, 104.4.56, 104.4.57, 104.4.58, 104.4.59, 104.4.60, 104.4.61, 104.4.62, 104.4.63, 104.4.64, 104.4.65, 104.4.66, 104.4.67, 104.4.68, 104.4.69, 104.4.70, 104.4.71, 104.4.72, 104.4.73, 104.4.74, 104.4.75, 104.4.76, 104.4.77, 104.4.78, 104.4.79, 104.4.80, 104.4.81, 104.4.82, 104.4.83, 104.4.84, 104.4.85, 104.4.86, 104.4.87, 104.4.88, 104.4.89, 104.4.90, 104.4.91, 104.4.92, 104.4.93, 104.4.94, 104.4.95, 104.4.96, 104.4.97, 104.4.98, 104.4.99, 104.4.100.

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June 30, 2006

| | | |
|--|-------------|-------|
| Interest expense 10% × \$5 million | 50,000 | |
| Cash | | 7,000 |
| Interest receivable | | |
| Cash | \$5 million | 5,000 |
| Interest receivable 5% × \$5 million | | 9,363 |
| Interest revenue 5% × \$5 million | | |
| Holding gain—interest rate swap | | 4,363 |
| To record the net cash received from interest on the swap and change in the fair value of the derivative | | |
| Holding loss—hedged note | 4,363 | |
| Notes payable 10% × \$5 million | | 4,363 |
| To record change in the value of the note due to interest rate changes | | |

The net interest settlement on June 30, 2006, is \$5,000 because the fixed rate is 5% (half of the 10% annual rate) and the floating rate is 4.5% (half of the 9% annual rate). A holding gain (\$4,363) is recognized by holding the derivative security during a time when an interest rate decline caused an increase in the value of that asset. A portion (\$5,000) of the gain was received in cash and another portion (\$4,363) is reflected as an increase in the value of the asset.

We also have holding loss of the same amount. This is because we also held a liability during the same time period, and the interest rate change caused its fair value to increase as well.

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December 31, 2006

| | | |
|--|-------------|--------|
| Interest expense 4% × \$5,000,000 | 45,451 | |
| Notes payable—derivative | | 4,579 |
| Cash | | 50,000 |
| Interest receivable | | |
| Cash | \$5 million | 10,000 |
| Interest receivable 9% × \$5 million | | 752 |
| Interest revenue 9% × \$5 million | | 4,579 |
| Holding gain—interest rate swap | | 8 |
| To record the net cash received from interest on the swap and change in the fair value of the derivative | | |
| Holding loss—hedged note | 4,831 | |
| Notes payable 10% × \$5 million | | 4,831 |
| To record the change in fair value of the note due to interest rate changes | | |

See Table 13.2 for a summary of the entries to record the swap.

We determine interest on the note the same way we do for any liability—as you learned earlier—as the effective rate (9% × 1/2) times the outstanding balance (\$5,000,000). This results in recording the note's carrying amount for the cash interest paid in excess of the interest expense.

The fair value of the swap increased due to the interest rate decline by \$232 (from \$9,363 to \$9,595). The holding gain we recognized in earnings consists of that increase (a) plus the \$10,000 cash settlement also created by the interest rate decline and (b) minus the \$421 increase that results not from the interest rate decline, but from interest accruing on the asset. Similarly, we adjust the note's carrying value by the amount necessary to increase it to fair value—allowing for the \$4,579 reduction in the note in the earlier entry to record interest.

At June 30, 2007, Winter repeats the process of adjusting to fair value both the derivative investment and the note being hedged.

Table 13.2 summarizes the entries to record the swap. As you can see, the entries to record the swap are similar to the entries to record the interest rate swap. The entries to record the swap are similar to the entries to record the interest rate swap. The entries to record the swap are similar to the entries to record the interest rate swap.

June 30, 2007

| | | |
|--|-----------|-----------|
| Interest expense (5% \times \$ 100,000) | 5,000 | |
| Notes payable—floating rate | | 9,615 |
| To record interest | | 50,000 |
| Cash (5% \times 100,000) | 5,000 | |
| Holding loss—interest rate swap (in balance sheet as swap, for \$9,615 interest received at 8%) | 5,000 | 9,615 |
| To record the derivative element accrued interest on the swap and change in fair value of the derivative | | 165 |
| Notes payable—\$100,000 (100,000 \times 0.001) | 0 | |
| Holding gain—hedged note | | 0 |
| To record the change in fair value of the note due to interest rate changes | | |
| Notes payable | 1,000,000 | |
| Cash | | 1,000,000 |
| To record the cash | | |

The net interest received is the difference between the fixed rate (5%) and floating rate (4.5%) times \$1 million. The fair value of the swap decreased by \$9,615 (from \$9,615 to zero).¹⁰ The holding loss we recognize in earnings consists of that decline (a), minus the \$5,000 portion of the decline resulting from it being realized in cash settlement and (b) plus the \$365 increase that results not from the interest rate change but from interest accruing on the swap.

Now let's see how the carrying values changed for the swap account and the note:

| | Swap | Note |
|---------------|-------|-----------|
| Jan. 2006 | | 1,000,000 |
| June 30, 2006 | 9,363 | 9,363 |
| Dec 31, 2006 | 252 | 4,579 |
| June 30, 2007 | 9,615 | 4,831 |

The income statement is affected as follows:

| Income Statement + (-) | | |
|------------------------|----------|--|
| June 30, 2006 | \$1,000 | Interest expense |
| | 0 | Interest revenue (note has passed) |
| | 436 | Holding gain—interest rate swap |
| | 19,363 | Holding loss—hedged note |
| | (18,000) | Net effect—same as paying interest payment |
| Dec 31, 2006 | (45,471) | Interest expense |
| | 45 | Interest revenue |
| | 781 | Holding gain—interest rate swap |
| | 48 | Holding loss—hedged note |
| | (39,000) | Net effect—same as paying interest payment |
| June 30, 2007 | (40,381) | Interest expense |
| | 0 | Interest revenue |
| | (5,000) | Holding loss—interest rate swap |
| | 0 | Holding gain—hedged note |
| | (45,381) | Net effect—same as paying interest payment |

As this demonstrates, the swap effectively converts Wintel's fixed-interest debt to floating-interest debt.

¹⁰ The change in fair value of the swap is the difference between the fair value of the swap at the end of the period and the fair value at the beginning of the period.

THE BOTTOM LINE

1. All derivatives are reported in the balance sheet at fair value.
2. *Hedging* means taking a risk position that is opposite to an actual position that is exposed to risk. For a derivative used to hedge against exposure to risk, treatment of any gain or loss from fair value changes depends on whether the derivative is designated as (a) a fair value hedge or (b) a cash flow hedge.
3. We recognize a gain or loss from a *fair value hedge* immediately in earnings along with the loss or gain from the item being hedged. This is so the income effects of the hedge instrument and the income effects of the item being hedged will affect earnings at the same time.
4. We defer a gain or loss from a *cash flow hedge* as part of **Other comprehensive income** until it can be recognized in earnings along with the earnings effect of the item being hedged.
5. Imperfect hedges result in part of the derivative gain or loss being included in current earnings. We ignore market value changes unrelated to the risk being hedged.
6. Extensive disclosure requirements about derivatives are designed to provide inventory and creditors information about the adequacy of a company's risk management and the company's success in reducing risks, including risks not managed successfully. ■

QUESTIONS FOR REVIEW OF KEY TOPICS

- Q A 1. What financial instruments are called derivatives? Why?
- Q A 2. Should gains and losses on a fair value hedge be recorded as they occur or should they be reported separately with losses and gains on the item being hedged?
- Q A 3. Hines Moving Company Inc. is a fixed-rate debtor of \$2 million. The company wanted to hedge its fair value exposure with a futures contract. How would the company determine its position as of the time the contract is closed? What would be the effect on its gain or loss on the \$500,000 notional amount?
- Q A 4. What is a "black" contract?
- Q A 5. What is the effect on interest of an interest rate swap?
- Q A 6. How can the gain or loss on a cash flow hedge be reported?
- Q A 7. What is a gain or loss from a cash flow hedge reported in earnings?

EXERCISES

E 4
Derivatives—hedge
classification

Indicate (by abbreviation) the type of hedge each activity described below would represent:

- Hedge type**
- FV Fair value hedge
 - CF Cash flow hedge
 - FF Fixed-rate debt hedge
 - N Would not qualify as a hedge

Activity

1. An importer contracts to hedge possible future price changes of inventory.

2. A futures contract to hedge exposure to interest rate changes prior to repurchasing bank notes when they mature.

3. An interest rate swap to synthetically convert floating rate debt into fixed rate debt.

4. A future price swap to justify all the gains and losses on the debt and financing on debt.

5. A futures contract to hedge possible future price changes of timber stored by a firm committed to sell.

6. A futures contract to hedge possible future price changes of a forecasted sale of tin.

7. Exchange-traded futures contracts in a foreign currency.

8. A future price swap to synthetically convert floating rate debt into fixed rate debt.

9. An interest rate swap in which the floating interest rate interest is a fixed-to-floating debt investment and floating debt interest is a fixed-to-floating debt investment.
10. An interest rate swap in which the floating interest rate interest is a fixed-to-floating debt investment and fixed rate interest is a fixed-to-floating debt investment.

E A 2
Derivatives; interest rate swaps; fixed rate debt

On January 1, 2006, L.L.B. Industries borrowed \$200,000 from Trust Bank by issuing a two-year, 10% note with interest payable quarterly. The company also entered into an interest rate swap agreement on January 1, 2006 and designated the swap as a fair value hedge. Its intent was to hedge the risk that general interest rates will decline, causing the fair value of its investment to increase. The agreement called for the company to receive the fixed rate of 10% on the \$200,000 initial amount. The floating interest rate was based on a floating interest rate. The company called for cash settlements of the net interest amount quarterly.

During 2006, market rates were 10% on January 1, 10% on March 31, and 9% on June 30, 2006. The fair values of the swap are quoted below from a derivatives dealer. These figures are the fair values of the swap and not the underlying debt.

| | January 1 | March 31 | June 30 |
|----------------------------------|-----------|-----------|-----------|
| Fair value of interest rate swap | 0 | \$ 6,472 | \$ 1,794 |
| Fair value of note payable | \$200,000 | \$206,472 | \$211,794 |

- Required:
1. Prepare the journal entries for the cash settlement on March 31 and June 30, 2006.
 2. Prepare the journal entries through June 30, 2006, to record the issuance of the note, interest, and necessary adjustments for changes in fair value.

E A 3
Derivatives; interest rate swaps; fixed rate debt; fair value change

The following information pertains to L.L.B. Industries' cash settlement on March 31, 2006:

On January 1, 2006, L.L.B. Industries borrowed \$200,000 from Trust Bank by issuing a two-year, 10% note with interest payable quarterly. The company also entered into an interest rate swap agreement on January 1, 2006 and designated the swap as a fair value hedge. Its intent was to hedge the risk that general interest rates will decline, causing the fair value of its investment to increase. The agreement called for the company to receive the fixed rate of 10% on the \$200,000 initial amount. The floating interest rate was based on a floating interest rate. The company called for cash settlements of the net interest amount quarterly.

During 2006, market rates were 10% on January 1, 10% on March 31, and 9% on June 30, 2006. The fair values of the swap are quoted below from a derivatives dealer. These figures are the fair values of the swap and not the underlying debt.

| | January 1 | March 31 | June 30 |
|--------------------------------------|-----------|-----------|-----------|
| Fair value of interest rate swap | 0 | \$ 6,472 | \$ 1,794 |
| Fair value of the investment in note | \$200,000 | \$206,472 | \$211,794 |

- Required:
1. Calculate the net cash settlement on March 31 and June 30, 2006.
 2. Prepare the journal entries through June 30, 2006, to record the issuance of the note, interest, and necessary adjustments for changes in fair value.

E A 4
Derivatives; interest rate swaps; fixed rate debt; fair value change; hedged risk

This is a variation of Example E A 3, modified to consider fair value change unrelated to hedged risk.

L.L.B. Industries borrowed \$200,000 from Trust Bank by issuing a two-year, 10% note with interest payable quarterly. L.L.B. Industries also entered into a two-year interest rate swap agreement on January 1, 2006 and designated the swap as a fair value hedge. Its intent was to hedge the risk that general interest rates will decline, causing the fair value of its debt to increase. The agreement called for the company to receive the fixed rate of 10% on the \$200,000 initial amount. The floating interest rate was based on a floating interest rate. The company called for cash settlements of the net interest amount quarterly.

During 2006, market rates were 10% on January 1, 10% on March 31, and 9% on June 30, 2006. The fair values of the swap are quoted below from a derivatives dealer. These figures are the fair values of the swap and not the underlying debt.

The fair values of the swap are quoted below from a derivatives dealer. These figures are the fair values of the swap and not the underlying debt.

| | January 1 | March 31 | June 30 |
|----------------------------------|-----------|-----------|-----------|
| Fair value of interest rate swap | 0 | \$ 6,472 | \$ 1,794 |
| Fair value of note payable | \$200,000 | \$206,472 | \$211,794 |

- Required:
1. Prepare the journal entries for the cash settlement on March 31 and June 30, 2006.
 2. Prepare the journal entries through June 30, 2006, to record the interest and necessary adjustments for changes in fair value.

Do: variable interest rate swap; fixed rate debt; a-tracked method

his is a variation of Example 4-2 modified to consider the example problem

On January 1, 2006, L.L.B. Industries borrowed \$200,000 from Trust Bank by making a three-year, 10% note with interest payable quarterly. L.L.B. entered into a two-year interest rate swap agreement on January 1, 2006, and designated the swap as a fair value hedge. Its policy was to hedge the risk that general interest rates will decline causing the fair value of its debt to increase. The agreement called for the company to receive a payment based on a 20% fixed interest rate on a notional amount of \$200,000, or to pay a variable based on a floating interest rate. The contract called for each settlement of the net interest amount quarterly.

The fair value of the swap and quoted bid/ask prices are derived from a derivatives dealer. These quotes and the fair value of the swap are as follows:

| | January 1 | March 31 | June 30 |
|----------------------------------|-----------|-----------|----------|
| Face value of interest-free loan | 0 | \$ 6,472 | \$ 1,200 |
| Face value of note payable | \$200,000 | \$206,472 | \$21,200 |

2400. UC

Prepare the jointed station through Feb 30, 2005. In regard the business of the state, interest, and necessary adjustments for changes in this value Use the standard method demonstrates in Illustration A.2

Derivatives interest rate swap: fixed rate debt, all value change unrelated to hedged risk, extended method

Note: This is a variation of Exercise A-5 modified to illustrate the value change associated to hybrid risk.

In January 1, 2006, L.B. Industries borrowed \$200,000 from Bank by signing a 10-year, 14% note, with interest payable quarterly. L.B. entered into a two-year interest rate swap agreement on January 2006, with designated the swap as a fair value hedge. Its intent was to hedge the 10% then general market rate 14% decline, causing the fair value of its debt to increase. The agreement called for the company to receive payment based on a 10% fixed interest rate on a notional amount of \$200,000 and to pay interest based on a floating interest rate. The contract called for a settlement on all of the notional amount quarterly.

³ Analysis (LAPAD) of settlement rates versus GDP, in January 1 894 at Mexico 32, and 6% June 30 1900. The analysis of the impact of GDP on settlement rates is not statistically significant. The analysis of the impact of GDP on settlement rates is not statistically significant. The analysis of the impact of GDP on settlement rates is not statistically significant.

| | January 1 | March 31 | June 30 |
|----------------------------------|-----------|-----------|-----------|
| Fair value of interest rate swap | 0 | \$ 4,172 | \$ 17,394 |
| Net value of note payable | 3,800,000 | 2,966,472 | 2,900,000 |

Безопасность

1. Calculate the net cash collections as follows: 40,000.

[illegible]

• PROBLEMS

Genotypes: $int_1 int_2$
 2500

On January 1, 2006, Latsch Enterprises borrowed a \$1 million term loan from First Bank by signing a three-year, 5% note payable on December 31, 2005. Latsch was able to hedge the risk that general interest rates will decline causing the fair value of its debt to increase. Therefore, Latsch entered into a three-year interest rate swap agreement on January 1, 2006, and designated the swap as a fair value hedge. The agreement calls for the company to receive payment based on an 8% fixed interest rate up a notional amount of \$1,000,000 and to pay interest based on a floating interest rate tied to LIBOR. The contract called for cash exchanges of the net interest amount in the table below.

Finally, LIBOR settlement rates were 6% at inception and 6%, 7%, and 7.5% at the end of 1991, 1992, and 2004, respectively. The fair values of the swap are quoted obtained from a derivatives dealer. These quotes and the fair values of the note are as follows:

| | January 1 | December 31 | | |
|-----------------------------------|-----------|-------------|---------|---------|
| | 2006 | 2006 | 2007 | 2008 |
| Fair value of interest rate swaps | 0 | \$ 783 | \$ 835 | 0 |
| Fair value of notes payable | \$1,000 | \$792.7 | \$761.5 | \$721.8 |

● 1. 1

- Calculate the net cash settlements at the end of 2006, 2007, and 2008.

Depend on a small number of large firms to be the source of the value added and thereby to absorb a fair share of the value.

- ¹ Frequent (the journal entries during 2007) is record oriented, not a self-referential (for the critical text) with and history's submissibility for business in the value.

4. Prepare the journal entries during 2006 for interest obtained and cash interest settlement for the interest rate swap necessary adjustments for changes in fair value and repayment of the debt.
5. Calculate the net effect on earnings of the hedging arrangement in each of the three years (ignore income taxes).
6. Suppose the fair value of the note at December 31, 2006 had been \$97,000 rather than \$98,200 with the cash and interest in the debt account. Assume that the creditworthy company is able to raise new borrowings. How would that affect your entries to record changes in the fair values?

P 14-2
Derivative: swap, interest rate swap, mortgage-backed security

CMOS is hedging a 20-year, \$100 million, 7% bond payable with a 20-year interest rate swap and has designated the swap as a fair value hedge. The agreement called for CMOS to receive payments based on a floating interest rate of 6-month LIBOR plus 0.5% and to pay interest based on a fixed rate of 6.5% on the \$100 million notional amount. The net interest amount is \$100,000 at each year end.

At December 31, 2006, the fair value of the derivative used of the hedged bonds has increased by \$100,000 because interest rates declined during the reporting period.

Required:

1. Does CMOS have an unrealized gain or loss on the derivative for the period? On the bonds? Will earnings increase or decrease due to the hedging arrangement? Why?
2. Suppose interest rates increased, rather than decreased, causing the fair value of both the derivative and of the hedged bonds to decrease by \$100,000. Would CMOS have an unrealized gain or loss on the derivative for the period? On the bonds? Would earnings increase or decrease due to the hedging arrangement? Why?
3. Suppose the fair value of the bonds at December 31, 2006, had decreased by \$100,000 rather than \$100,000 with an additional increase in an above note to the extent of \$100,000. If the return on the investment of CMOS was 10%, would CMOS have an unrealized gain or loss on the derivative for the period? On the bonds? Would earnings increase or decrease due to the hedging arrangement? Why?
4. Suppose the notional amount of the swap had been \$1.2 million, rather than the \$100 million principal amount of the bonds. As a result, at December 31, 2006, the swap's fair value had increased by \$100,000 rather than \$100,000. Would CMOS have an unrealized gain or loss on the derivative for the period? On the bonds? Would earnings increase or decrease due to the hedging arrangement? Why?
5. Suppose CMOS reported an income statement for the year ending December 31, 2006, in which CMOS as described in the original situation above. CMOS is hedging its investment, classified as available-for-sale, with a 20-year interest rate swap and designated the swap as a fair value hedge. The agreement called for CMOS to receive payments based on a floating interest rate of 6-month LIBOR plus 0.5% and to pay interest based on a fixed rate of 6.5% on the \$100 million notional amount. The net interest amount is \$100,000 at each year end. Would CMOS have an unrealized gain or loss on the derivative for the period due to interest rates having declined? On the bonds? Would earnings increase or decrease due to the hedging arrangement? Why?

P 14-3
Derivatives: swaps, interest rate swap, fixed rate debt, extended method

Note: This is a variation of Problem 14-2. Consider the market for extended method designated in the problem.

On January 1, 2006, Labtech Chemicals borrowed \$100,000 from First Bank by issuing a three-year, 6% note, payable up December 31, 2008. Labtech wanted to hedge the risk that general interest rates will decline, causing the fair value of its debt to increase. Therefore, Labtech entered into a swap and interest rate swap agreement on January 1, 2006, and designated the swap as a fair value hedge. The agreement called for the company to receive payments based on an 8% fixed interest rate on a notional amount of \$100,000 and to pay interest based on a floating interest rate of 6-month LIBOR. The contract called for cash settlement of the net interest amount on December 31 of each year.

During 2006, the company was able to obtain the 6-month LIBOR rate at the end of 2006, 2007, and 2008, respectively. The fair values of the swap are quoted obtained from a derivatives dealer. These quotes and the fair values of the note are as follows:

| | January 1, 2006 | December 31, 2006 | 2007 | 2008 |
|----------------------------------|-----------------|-------------------|------------|------------|
| Fair value of interest rate swap | 0 | \$ 783 | \$ 935 | 0 |
| Fair value of note payable | \$ 100,000 | \$ 98,200 | \$ 101,475 | \$ 101,000 |

Required:

1. Use the extended method designation. Illustrate in A-2.
2. Calculate the net gain or loss on the swap and the net gain or loss on the debt.
3. Prepare the journal entries during 2006 to record the issuance of the note, interest, and necessary adjustments for changes in fair value.

1. Prepare the journal entries during 2007 to record interest on cash interest settlements for the interest rate swap and necessary adjustments for changing interest values.
2. Prepare the journal entries during 2008 to record interest on cash interest settlements for the interest rate swap and necessary adjustments for changing interest values and repayment of the debt.
3. Prepare the journal entries in both the 2007 and 2008 years to record the debt in each of the three years.
4. Calculate the net interest expense for each of the three years. Prepare the income statement for each year. Suppose the net income of the firm in the year 2007 was \$40,000, higher than the net income in 2008. Explain the reason for the difference in net income between the two years in relation with working capital and the effect of interest rate changes in the net value.

BROADEN YOUR PERSPECTIVE



Apply your critical-thinking ability to the knowledge you've gained. These cases will provide you an opportunity to develop your research, analysis, judgment, and communication skills. You also will work with other students. Integrate what you've learned, apply it in real-world situations, and consider its global and ethical ramifications. This practice will broaden your knowledge and further develop your decision-making abilities.

Real World Case A-1 Derivative Issues Recognition in Earnings

The following is an excerpt from a disclosure given by Johnson & Johnson.

15. Financial Instruments (in part)

As of January 1, 2003, the balance of deferred derivatives included in accumulated other comprehensive income was \$130 million after-tax. The Company expects that substantially all of this amount will be realized during 2003 as a result of transactions that are expected to occur over the period.

Background

Johnson & Johnson notes that it expects that substantially all of the balance of deferred derivatives included in accumulated other comprehensive income as of January 1, 2003 will be realized during 2003 as a result of transactions that are expected to occur over the period.

Communication

Discussion Derivative Hedge Accounting

A conceptual question in accounting for derivatives is: Should gains and losses on a hedge instrument be recorded in the income statement or be recorded in comprehensive income with income effects in the net income account?

At Johnson & Johnson, the hedge instrument is a Treasury bond futures contract. The hedge is a Treasury bond futures contract. The hedge is a Treasury bond futures contract. The hedge is a Treasury bond futures contract.

As a result of market rates rising, the Treasury bond futures contract will be sold at a higher interest rate (and lower price). The gain (loss) will be offset (approximately) by the gain (loss) realized by being in the opposite position in Treasury bond futures.

Two opposite viewpoints are:

View 1: Gains and losses on instruments designed to hedge anticipated transactions should be recorded in the income statement.

View 2: Gains and losses on instruments designed to hedge anticipated transactions should be recorded in comprehensive income with income effects in the net income account.

In considering the question, focus on conceptual issues regarding the practicable and theoretically appropriate treatment, recommended by GAAP. Your instructor will divide the class into two or six groups depending on the size of the class. The instructor will assign groups to reach consensus on the appropriate accounting for the gains and losses on instruments designed to hedge anticipated transactions.

Activity

1. Each group member should develop the question independently and draft a tentative argument for the case for which the case is assigned.

2. In class, each group will meet for 10 to 15 minutes in different areas of the classroom. During that meeting, group members will examine sharing their suggestions on the range of interest rate and multiple group members.
- After the allotted time, a spokesperson for each group (selected during the group meetings) will share the group's solution with the class. The goal of the class is to incorporate the views of each group and a consensus approach to the financing.

Research Case A-4
Researching the way interest rate futures prices are quoted on the Chicago Mercantile Exchange (viewing interest rate futures on the Internet)

Research Case A-4
Issues related to the derivatives standard: reveal the details

Research Case A-4
Do native American embedded derivatives

The Chicago Mercantile Exchange is located at 30 S. Wacker Drive in Chicago. In the world's largest financial exchange, all types of financial instruments are traded, including interest rate futures, interest rate swaps, and interest rate options.

As a derivative of the interest rate, a futures contract is a contract that obligates the buyer to purchase (or the seller to sell) a specified quantity of the underlying asset at a predetermined future date and price. The price of the contract is determined by the market price of the underlying asset at the time of the contract.

In addition to the futures market, the CME also trades interest rate swaps and interest rate options. Interest rate swaps are contracts in which two parties agree to exchange cash flows based on different interest rate benchmarks. Interest rate options are contracts that give the holder the right, but not the obligation, to enter into an interest rate swap at a future date.

When the price of the underlying asset rises above the strike price, the call option is in the money. When the price of the underlying asset falls below the strike price, the put option is in the money. When the price of the underlying asset is at the strike price, the option is at the money.

The following table shows the relationship between the price of the underlying asset and the price of the call and put options. The table shows that the price of a call option increases as the price of the underlying asset increases, and the price of a put option decreases as the price of the underlying asset increases.

Case A-4: Abbey Technology, Inc.

This case provides students the opportunity to discuss whether or not a particular asset is a nonderivative or a derivative. The case also provides students the opportunity to discuss whether or not a particular asset is a nonderivative or a derivative.

FedEx Financial Statements

UNITED STATES OF AMERICA

CONSOLIDATED STATEMENTS OF INCOME

| | 2004 | 2003 | 2002 |
|---|----------|----------|----------|
| Revenue | \$24,770 | \$23,461 | \$21,000 |
| Operating expenses | | | |
| Cost of services | 10,728 | 9,771 | 9,039 |
| Depreciation and amortization | 2,407 | 2,115 | 1,823 |
| Postage and freight | 1,948 | 1,707 | 1,561 |
| Salaries and benefits | 6,375 | 5,751 | 5,144 |
| Other operating expenses | 1,441 | 1,348 | 1,096 |
| Goodwill impairment | 1,523 | 359 | 110 |
| Restructuring costs | 436 | - | - |
| Other non-recurring expenses | 5,085 | 1,147 | 511 |
| | 23,279 | 21,016 | 19,080 |
| OPERATING INCOME | 1,491 | 2,445 | 1,920 |
| Other income (expense) | | | |
| Interest income | (136) | 124 | 144 |
| Interest expense | 20 | 5 | 5 |
| Other income (expense) | (16) | (15) | (7) |
| Income before income taxes | (121) | 209 | 212 |
| Provision for income taxes | 315 | 278 | 152 |
| Minority interest income (expense) | 481 | 500 | 425 |
| Net income (loss) | \$665 | \$987 | \$789 |
| Net income (loss) per common share | \$ 0.06 | \$ 0.09 | \$ 0.08 |
| Weighted average common shares outstanding | 11,000 | 11,000 | 11,000 |
| Basic earnings per common share | \$ 0.06 | \$ 0.09 | \$ 0.08 |
| Diluted earnings per common share | \$ 0.06 | \$ 0.09 | \$ 0.08 |
| Weighted average common shares outstanding, including potential common shares | 11,000 | 11,000 | 11,000 |
| Diluted earnings per common share | \$ 0.06 | \$ 0.09 | \$ 0.08 |

CONSOLIDATED BALANCE SHEETS

| | May 31 | |
|--|----------|----------|
| | 2006 | 2005 |
| ASSETS | | |
| Current Assets | | |
| Cash | \$ 1,006 | \$ 1,738 |
| Accounts receivable | 3,027 | 2,421 |
| Prepaid expenses | 245 | 128 |
| Other current assets | 485 | 442 |
| Total current assets | 5,763 | 4,729 |
| Property and Equipment, net | | |
| Aircraft and related equipment | 7,887 | 8,624 |
| Package handling and ground support equipment and vehicles | 8,298 | 8,013 |
| Computer and electronic equipment | 3,537 | 3,181 |
| Other | 4,477 | 4,214 |
| Total property and equipment | 24,199 | 23,032 |
| Other long-term assets | | |
| Goodwill | 2,887 | 1,811 |
| Intangible assets other than goodwill | 1,127 | 712 |
| Total other long-term assets | 4,014 | 2,523 |
| LIABILITIES AND STOCKHOLDERS' INVESTMENT | | |
| Current liabilities | | |
| Current portion of long-term debt | \$ 768 | \$ 508 |
| Accounts payable and accrued liabilities | 7,062 | 724 |
| Other current liabilities | 515 | 103 |
| Total current liabilities | 8,345 | 1,335 |
| Long-term debt | 2,837 | 178 |
| Other long-term liabilities | | |
| Deferred income tax liabilities | 719 | 862 |
| Other long-term liabilities | 766 | 657 |
| Total other long-term liabilities | 1,485 | 1,519 |
| Deferred income tax liabilities | 988 | 681 |
| Other long-term liabilities | 425 | 471 |
| Total other long-term liabilities | 1,413 | 1,152 |
| Commitments and contingencies | | |
| Common stock, \$1.00 par value | | |
| Preferred stock, \$1.00 par value | | |
| Authorized common stock | 30 | 30 |
| Authorized preferred stock | 1,000 | 1,000 |
| Accumulated other comprehensive income | (40) | (80) |
| Total stockholders' investment | 1,000 | 1,000 |
| Total liabilities and stockholders' investment | \$18,585 | \$16,387 |

PULS CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

| | 2014 | 2013 | 2012 |
|---|----------|----------|----------|
| OPERATING ACTIVITIES | | | |
| Net income | \$ 838 | \$ 930 | \$ 210 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | | |
| Depreciation expense | 1,320 | 1,287 | 1,364 |
| Amortization expense | 900 | 165 | 10 |
| Loss on sale of equipment | 81 | 219 | 84 |
| Gain on sale of investment | | | (1) |
| Loss on sale of subsidiary | 43 | 70 | 18 |
| Gain on sale of land | (307) | (192) | (88) |
| Provision for doubtful accounts | 18 | 75 | 67 |
| Provision for inventory obsolescence | 856 | (184) | 7 |
| Provision for equity method investee losses | 841 | 75 | 24 |
| Provision for income taxes | (72) | 14 | |
| Provision for pension expense | 1,420 | 1,577 | 1,118 |
| INVESTING ACTIVITIES | | | |
| Acquisition of subsidiary, net of cash acquired | (2,400) | | 75 |
| Acquisition of equipment | (1,237) | (514) | (814) |
| Disposal of equipment | 65 | 21 | 1 |
| Disposal of investments | 4 | 71 | |
| FINANCING ACTIVITIES | | | |
| Principal payments on debt | (305) | 101 | (272) |
| Proceeds from debt issuance | 1,500 | | |
| Dividends paid | (53) | 0 | 88 |
| Purchase of treasury stock | (130) | (180) | |
| Proceeds from sale of treasury stock | (130) | (185) | 17 |
| Cash provided by operating activities | 1,388 | 2,441 | 1,061 |
| CASH AND CASH EQUIVALENTS | | | |
| At beginning of year | 924 | 207 | 178 |
| At end of year | 2,312 | 1,371 | 719 |
| Supplemental disclosures | | | |
| Cash paid for income taxes | \$ 1,006 | \$ 2,481 | \$ 1,117 |

CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' INVESTMENT
AND COMPREHENSIVE INCOME

[illegible]

⁷ The case of *Paragard* and *Mirena* are the only ones that have been litigated in the United States.

NOTE 1. DESCRIPTION OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

DESCRIPTION OF BUSINESS

FedEx Corporation ("FedEx") provides a broad portfolio of express, overnight, and business services with companies operating in the United States and internationally. FedEx services are provided through a number of subsidiaries, including FedEx Express, FedEx Freight, FedEx Ground, FedEx International, FedEx Kinko's, and FedEx Office. FedEx Express is a global express delivery service. FedEx Freight is a leading U.S. parcel and freight truckload carrier. FedEx Ground is a leading U.S. parcel carrier. FedEx International is a leading international express delivery service. FedEx Kinko's is a leading U.S. office and print services provider. FedEx Office is a leading U.S. office and print services provider.

The company's primary operating segments are FedEx Express, FedEx Freight, FedEx Ground, FedEx International, FedEx Kinko's, and FedEx Office. FedEx Express is a global express delivery service. FedEx Freight is a leading U.S. parcel and freight truckload carrier. FedEx Ground is a leading U.S. parcel carrier. FedEx International is a leading international express delivery service. FedEx Kinko's is a leading U.S. office and print services provider. FedEx Office is a leading U.S. office and print services provider.

The company's primary operating segments are FedEx Express, FedEx Freight, FedEx Ground, FedEx International, FedEx Kinko's, and FedEx Office. FedEx Express is a global express delivery service. FedEx Freight is a leading U.S. parcel and freight truckload carrier. FedEx Ground is a leading U.S. parcel carrier. FedEx International is a leading international express delivery service. FedEx Kinko's is a leading U.S. office and print services provider. FedEx Office is a leading U.S. office and print services provider.

FINANCIAL STATEMENTS

The company's financial statements are prepared in accordance with U.S. GAAP. The company's financial statements are prepared in accordance with U.S. GAAP. The company's financial statements are prepared in accordance with U.S. GAAP.

PRINCIPLES OF CONSOLIDATION

The consolidated financial statements include the accounts of the company and its subsidiaries, jointly owned entities, and entities in which the company has a significant influence. The consolidated financial statements include the accounts of the company and its subsidiaries, jointly owned entities, and entities in which the company has a significant influence.

CREDIT RISK

The company's credit risk is primarily related to its accounts receivable. The company's credit risk is primarily related to its accounts receivable. The company's credit risk is primarily related to its accounts receivable. The company's credit risk is primarily related to its accounts receivable. The company's credit risk is primarily related to its accounts receivable.

PROPERTY, PLANT, AND EQUIPMENT

Property, plant, and equipment are recorded at cost less accumulated depreciation and amortization. Property, plant, and equipment are recorded at cost less accumulated depreciation and amortization. Property, plant, and equipment are recorded at cost less accumulated depreciation and amortization.

| | 2006 | 2005 | 2004 |
|---|---------|---------|---------|
| Property, plant, and equipment | \$1,234 | \$1,123 | \$1,012 |
| Accumulated depreciation and amortization | (567) | (543) | (521) |
| Net property, plant, and equipment | \$667 | \$580 | \$491 |

The company's property, plant, and equipment are recorded at cost less accumulated depreciation and amortization. The company's property, plant, and equipment are recorded at cost less accumulated depreciation and amortization. The company's property, plant, and equipment are recorded at cost less accumulated depreciation and amortization.

ADVERTISING

Advertising costs are expensed as incurred. Advertising costs are expensed as incurred. Advertising costs are expensed as incurred. Advertising costs are expensed as incurred. Advertising costs are expensed as incurred.

CASH AND CASH EQUIVALENTS

Cash and cash equivalents are recorded at cost. Cash and cash equivalents are recorded at cost. Cash and cash equivalents are recorded at cost. Cash and cash equivalents are recorded at cost. Cash and cash equivalents are recorded at cost.

INVENTORY, SUPPLIES, AND FUEL

Inventory, supplies, and fuel are recorded at cost. Inventory, supplies, and fuel are recorded at cost. Inventory, supplies, and fuel are recorded at cost. Inventory, supplies, and fuel are recorded at cost. Inventory, supplies, and fuel are recorded at cost.

| | 2006 | 2005 | 2004 |
|---|-------|-------|-------|
| Inventory, supplies, and fuel | \$123 | \$112 | \$101 |
| Accumulated depreciation and amortization | (45) | (43) | (41) |
| Net inventory, supplies, and fuel | \$78 | \$69 | \$60 |

PROPERTY AND EQUIPMENT

Property and equipment are recorded at cost less accumulated depreciation and amortization. Property and equipment are recorded at cost less accumulated depreciation and amortization. Property and equipment are recorded at cost less accumulated depreciation and amortization.

| | 2006 | 2005 | 2004 |
|---|---------|---------|---------|
| Property and equipment | \$1,234 | \$1,123 | \$1,012 |
| Accumulated depreciation and amortization | (567) | (543) | (521) |
| Net property and equipment | \$667 | \$580 | \$491 |

| | 2006 | 2005 | 2004 |
|---|---------|---------|---------|
| Property and equipment | \$1,234 | \$1,123 | \$1,012 |
| Accumulated depreciation and amortization | (567) | (543) | (521) |
| Net property and equipment | \$667 | \$580 | \$491 |

to purchase a new acquisition of a new or old asset. The new or old asset is purchased at the time of purchase.

| | |
|--|---------------|
| Non-current assets and liabilities | 5 to 15 years |
| Package handling and ground support equipment and vehicles | 3 to 10 years |
| Computer and electronic equipment | 3 to 10 years |

Significantly all property and equipment have no maintenance costs.

There is no built-in over head in the value. The periodically evaluated and revalued assets are not subject to depreciation and are not subject to impairment. This will result in a result of zero.

Assets of property and equipment are used in operations, and are not subject to depreciation and are not subject to impairment.

Assets of property and equipment are used in operations, and are not subject to depreciation and are not subject to impairment.

CAPITALIZED INTEREST

2007 and 2006.

IMPAIRMENT OF LONG-TERM ASSETS

Long-term assets are reviewed for impairment when there is a change in the carrying amount of the asset.

Impairment loss is determined as the difference between the carrying amount of the asset and its fair value. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date.

PENSION AND POSTRETIREMENT BENEFIT PLANS

Pension and postretirement benefit plans are measured as of the last day of the fiscal year. The measurement is based on the actuarial assumptions and assumptions of the plans. The measurement is based on the actuarial assumptions and assumptions of the plans.

There is no built-in over head in the value. The periodically evaluated and revalued assets are not subject to depreciation and are not subject to impairment. This will result in a result of zero.

| | |
|--|---------------|
| Non-current assets and liabilities | 5 to 15 years |
| Package handling and ground support equipment and vehicles | 3 to 10 years |
| Computer and electronic equipment | 3 to 10 years |

Significantly all property and equipment have no maintenance costs.

INTANGIBLE ASSETS

Intangible assets are reviewed for impairment when there is a change in the carrying amount of the asset. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date.

INTANGIBLE ASSETS

Intangible assets are reviewed for impairment when there is a change in the carrying amount of the asset. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date.

INTANGIBLE ASSETS

| | |
|--|---------------|
| Non-current assets and liabilities | 5 to 15 years |
| Package handling and ground support equipment and vehicles | 3 to 10 years |
| Computer and electronic equipment | 3 to 10 years |

Significantly all property and equipment have no maintenance costs.

There is no built-in over head in the value. The periodically evaluated and revalued assets are not subject to depreciation and are not subject to impairment. This will result in a result of zero.

INTANGIBLE ASSETS

Intangible assets are reviewed for impairment when there is a change in the carrying amount of the asset. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date. The fair value is determined as the amount for which the asset could be sold in an orderly transaction between market participants at the measurement date.

These acquisitions were accounted for under the purchase method of accounting. The operating results of the acquired businesses from the date of acquisition are:

NOTE 3 GOODWILL AND INTANGIBLES

On July 1, 2001, we adopted SFAS 142, Goodwill and Other Intangible Assets, which requires us to separately value

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|--------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |

comparing the fair value of each reporting unit with its carrying value (including other intangible assets). The value was determined using a discounted cash flow methodology. Based on this comparison, we determined that the fair value of each reporting unit was greater than its carrying value.

Based on the comparison of the fair value of each reporting unit with its carrying value, we determined that the carrying value of each reporting unit was less than its fair value. As a result, we determined that the carrying value of each reporting unit was less than its fair value. As a result, we determined that the carrying value of each reporting unit was less than its fair value.

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|--------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|------------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |
| Expenses | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |
| Net income | \$0.0 | \$0.0 | \$0.0 | \$0.0 | \$0.0 |

The components of our intangible assets were as follows (in millions):

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|-----------------------------------|--------|--------|--------|-------|-------|
| Amortizable intangible assets | \$ 72 | \$ 121 | \$ 75 | \$ 37 | \$ 37 |
| Non-amortizable intangible assets | \$ 196 | \$ 160 | \$ 40 | \$ 14 | \$ 14 |
| Total intangible assets | \$ 268 | \$ 281 | \$ 115 | \$ 51 | \$ 51 |

Amortizable intangible assets for intangible assets were \$14 million in 2001, \$14 million in 2000, and \$14 million in 2001. Amortization expense was \$14 million in 2001, \$14 million in 2000, and \$14 million in 2001.

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|------------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |
| Expenses | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |
| Net income | \$0.0 | \$0.0 | \$0.0 | \$0.0 | \$0.0 |

NOTE 4 BUSINESS REALIGNMENT COSTS

During 2001, we incurred business realignment costs with respect to the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations.

The costs were incurred in connection with the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations.

The costs were incurred in connection with the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations.

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|--------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |

During the period presented under the restructuring program, we incurred costs associated with the restructuring of our operations. The costs were incurred in connection with the restructuring of our operations.

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|--------|-------|-------|-------|-------|-------|
| Income | \$1.1 | \$1.1 | \$1.1 | \$1.1 | \$1.1 |

The components of our business realignment costs and charges (the related accruals) were as follows for the year ended May:

| | 2001 | 2000 | 1999 | 1998 | 1997 |
|--|--------|--------|--------|-------|-------|
| Business realignment costs | \$ 72 | \$ 121 | \$ 75 | \$ 37 | \$ 37 |
| Business realignment charges | \$ 196 | \$ 160 | \$ 40 | \$ 14 | \$ 14 |
| Total business realignment costs and charges | \$ 268 | \$ 281 | \$ 115 | \$ 51 | \$ 51 |

FDX-2004

NOTE 4 SELECTED CURRENT LIABILITIES

The components of selected current liabilities are as follows (in millions):

| | 2004 | 2003 |
|--|---------|---------|
| Accounts payable and accrued liabilities | | |
| Salaries | \$ 183 | \$ 118 |
| Employee benefits | 206 | 277 |
| Compensated absences | 808 | 379 |
| | \$1,197 | \$ 774 |
| Accrued expenses | | |
| Self-insurance annuities | \$ 482 | \$ 484 |
| Other self-insurance losses | 299 | 276 |
| | 579 | 555 |
| | \$1,776 | \$1,329 |

NOTE 5 LONG TERM DEBT AND OTHER FINANCING ARRANGEMENTS

| | 2004 | 2003 |
|--|---------|---------|
| Unsecured debt | \$2,886 | \$1,674 |
| Capital lease obligations | 899 | 522 |
| Debt with interest rates of 7.25% to 9.90% | | |
| | 135 | 50 |
| | 3,520 | 2,246 |
| | 750 | 300 |
| | \$2,770 | \$1,946 |

As May 31, 2004, we had two revolving bank credit facilities totaling \$1 billion. One facility provides for \$750 million through 2005, and the other provides for \$250 million through 2006. Interest rates on our borrowings under the agreements are generally determined by the prime rate selected and prevailing market conditions. Borrowings under the credit agreements are collateralized by our equipment at a rate per annum equal to LIBOR (as defined in the International Money Market "LIBOR") plus a spread amount, or (b) the greater of the Federal Funds Effective Rate as defined plus 1.75% or the

original issue discount rate, whichever is greater to the applicable margin.

Unsecured debt is subject to our revolving credit agreements and includes the period of time between the end of the period and May 1, 2004 and 2005, no commercial paper borrowings were outstanding, and the entire \$1 billion under the revolving credit

The components of unsecured debt (book distribution) were as follows:

| | 2004 | 2003 |
|-------------------------------------|---------|---------|
| At May 31, 2004 | | |
| plus 0.25%, due in 2005 | \$ 200 | \$ 220 |
| Interest rate of 7.00%, due in 2007 | 200 | 220 |
| | 400 | 440 |
| Due in 2007 | | |
| Interest rate of 7.00%, due in 2007 | 200 | 220 |
| | 200 | 220 |
| | 400 | 440 |
| | \$2,886 | \$1,674 |

amount raised for the \$2 billion. During February 2004, we raised \$2 billion in debt through the issuance of commercial bonds. This debt is included in the \$2 billion of unsecured debt shown in the balance sheet. The debt is included in the \$2 billion of unsecured debt shown in the balance sheet. The debt is included in the \$2 billion of unsecured debt shown in the balance sheet.

On February 2004, debt of \$240 million was assumed as part of the acquisition of the company. The debt is included in the \$2 billion of unsecured debt shown in the balance sheet. The debt is included in the \$2 billion of unsecured debt shown in the balance sheet.

Unsecured debt is subject to our revolving credit agreements and includes the period of time between the end of the period and May 1, 2004 and 2005, no commercial paper borrowings were outstanding, and the entire \$1 billion under the revolving credit

Unsecured debt is subject to our revolving credit agreements and includes the period of time between the end of the period and May 1, 2004 and 2005, no commercial paper borrowings were outstanding, and the entire \$1 billion under the revolving credit

business to support our operations. Letters of credit at May 31 2004 were \$1.1 billion. The following table shows the amount of letters of credit outstanding at May 31 2004:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|
| 10^2 | 10^3 | 10^4 | 10^5 | 10^6 | 10^7 | 10^8 | 10^9 | 10^{10} | 10^{11} | 10^{12} | 10^{13} | 10^{14} | 10^{15} | 10^{16} | 10^{17} | 10^{18} | 10^{19} | 10^{20} | 10^{21} | 10^{22} | 10^{23} | 10^{24} | 10^{25} | 10^{26} | 10^{27} | 10^{28} | 10^{29} | 10^{30} | 10^{31} | 10^{32} | 10^{33} | 10^{34} | 10^{35} | 10^{36} | 10^{37} | 10^{38} | 10^{39} | 10^{40} | 10^{41} | 10^{42} | 10^{43} | 10^{44} | 10^{45} | 10^{46} | 10^{47} | 10^{48} | 10^{49} | 10^{50} | 10^{51} | 10^{52} | 10^{53} | 10^{54} | 10^{55} | 10^{56} | 10^{57} | 10^{58} | 10^{59} | 10^{60} | 10^{61} | 10^{62} | 10^{63} | 10^{64} | 10^{65} | 10^{66} | 10^{67} | 10^{68} | 10^{69} | 10^{70} | 10^{71} | 10^{72} | 10^{73} | 10^{74} | 10^{75} | 10^{76} | 10^{77} | 10^{78} | 10^{79} | 10^{80} | 10^{81} | 10^{82} | 10^{83} | 10^{84} | 10^{85} | 10^{86} | 10^{87} | 10^{88} | 10^{89} | 10^{90} | 10^{91} | 10^{92} | 10^{93} | 10^{94} | 10^{95} | 10^{96} | 10^{97} | 10^{98} | 10^{99} | 10^{100} | 10^{101} | 10^{102} | 10^{103} | 10^{104} | 10^{105} | 10^{106} | 10^{107} | 10^{108} | 10^{109} | 10^{110} | 10^{111} | 10^{112} | 10^{113} | 10^{114} | 10^{115} | 10^{116} | 10^{117} | 10^{118} | 10^{119} | 10^{120} | 10^{121} | 10^{122} | 10^{123} | 10^{124} | 10^{125} | 10^{126} | 10^{127} | 10^{128} | 10^{129} | 10^{130} | 10^{131} | 10^{132} | 10^{133} | 10^{134} | 10^{135} | 10^{136} | 10^{137} | 10^{138} | 10^{139} | 10^{140} | 10^{141} | 10^{142} | 10^{143} | 10^{144} | 10^{145} | 10^{146} | 10^{147} | 10^{148} | 10^{149} | 10^{150} | 10^{151} | 10^{152} | 10^{153} | 10^{154} | 10^{155} | 10^{156} | 10^{157} | 10^{158} | 10^{159} | 10^{160} | 10^{161} | 10^{162} | 10^{163} | 10^{164} | 10^{165} | 10^{166} | 10^{167} | 10^{168} | 10^{169} | 10^{170} | 10^{171} | 10^{172} | 10^{173} | 10^{174} | 10^{175} | 10^{176} | 10^{177} | 10^{178} | 10^{179} | 10^{180} | 10^{181} | 10^{182} | 10^{183} | 10^{184} | 10^{185} | 10^{186} | 10^{187} | 10^{188} | 10^{189} | 10^{190} | 10^{191} | 10^{192} | 10^{193} | 10^{194} | 10^{195} | 10^{196} | 10^{197} | 10^{198} | 10^{199} | 10^{200} | 10^{201} | 10^{202} | 10^{203} | 10^{204} | 10^{205} | 10^{206} | 10^{207} | 10^{208} | 10^{209} | 10^{210} | 10^{211} | 10^{212} | 10^{213} | 10^{214} | 10^{215} | 10^{216} | 10^{217} | 10^{218} | 10^{219} | 10^{220} | 10^{221} | 10^{222} | 10^{223} | 10^{224} | 10^{225} | 10^{226} | 10^{227} | 10^{228} | 10^{229} | 10^{230} | 10^{231} | 10^{232} | 10^{233} | 10^{234} | 10^{235} | 10^{236} | 10^{237} | 10^{238} | 10^{239} | 10^{240} | 10^{241} | 10^{242} | 10^{243} | 10^{244} | 10^{245} | 10^{246} | 10^{247} | 10^{248} | 10^{249} | 10^{250} | 10^{251} | 10^{252} | 10^{253} | 10^{254} | 10^{255} | 10^{256} | 10^{257} | 10^{258} | 10^{259} | 10^{260} | 10^{261} | 10^{262} | 10^{263} | 10^{264} | 10^{265} | 10^{266} | 10^{267} | 10^{268} | 10^{269} | 10^{270} | 10^{271} | 10^{272} | 10^{273} | 10^{274} | 10^{275} | 10^{276} | 10^{277} | 10^{278} | 10^{279} | 10^{280} | 10^{2 |
|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------|


maturing of stock, weakness of capital markets, for the two years subsequent to May 31, 2004, are as follows (in millions):

| | |
|-------|------|
| 10 | 30.1 |
| 4-10 | 7.5 |
| 10-17 | 2.4 |
| 18-24 | 1.0 |

Using long-term cost estimates of capital markets, the carrying values of \$3.0 billion and \$1.0 billion at May 31, 2008 and 2007, respectively, compared with estimated fair values of approximately \$2.2 billion and \$1.0 billion at those respective dates. The estimated fair values were determined based on quoted market prices for the common shares of the company, which are publicly traded and liquid.

[illegible]

NOTE 7. LATE COMBINATIONS

We advise certain aircraft, some airlines, to use ice-free areas and to avoid the following areas:  In addition, supplemental information is available through 24-hour flight information services. For more information, call 1-800-441-4222 or visit our website at www.faa.gov.

The components of property and equipment in selected periods and realizations were as follows (in millions):

| | 2004 | 2005 |
|--------------------------------------|------|------|
| Alumni | 234 | 122 |
| Exchange residency and group support | | |
| equipment and articles | 307 | 267 |
| Other, nonoperating assets | 236 | 157 |
| | 777 | 546 |
| | 300 | 258 |
| | 477 | 288 |

flant gollenne under geyering mases wale no toltwale in dilt mase

| | 2000 | 2001 | 2002 |
|--------------------|--------|--------|--------|
| 4th quarter ending | 21,200 | 21,522 | 51,420 |
| 1st | 14 | 11 | 13 |
| 2nd | 21,200 | 21,522 | 51,420 |

Contingent rentals are based on equipment usage

language and recognizable springing season, principally attributable to adoption and legislation with an intent of maintaining the historic appearance of the area. At May 31, 2009, it is estimated that maintenance

| | | |
|-----|-------|-------|
| 001 | 1.100 | 1.100 |
| 002 | 1.100 | 1.100 |
| 003 | 1.100 | 1.100 |
| 004 | 1.100 | 1.100 |
| 005 | 1.100 | 1.100 |
| 006 | 1.100 | 1.100 |
| 007 | 1.100 | 1.100 |
| 008 | 1.100 | 1.100 |
| 009 | 1.100 | 1.100 |
| 010 | 1.100 | 1.100 |
| 011 | 1.100 | 1.100 |
| 012 | 1.100 | 1.100 |
| 013 | 1.100 | 1.100 |
| 014 | 1.100 | 1.100 |
| 015 | 1.100 | 1.100 |
| 016 | 1.100 | 1.100 |
| 017 | 1.100 | 1.100 |
| 018 | 1.100 | 1.100 |
| 019 | 1.100 | 1.100 |
| 020 | 1.100 | 1.100 |
| 021 | 1.100 | 1.100 |
| 022 | 1.100 | 1.100 |
| 023 | 1.100 | 1.100 |
| 024 | 1.100 | 1.100 |
| 025 | 1.100 | 1.100 |
| 026 | 1.100 | 1.100 |
| 027 | 1.100 | 1.100 |
| 028 | 1.100 | 1.100 |
| 029 | 1.100 | 1.100 |
| 030 | 1.100 | 1.100 |
| 031 | 1.100 | 1.100 |
| 032 | 1.100 | 1.100 |
| 033 | 1.100 | 1.100 |
| 034 | 1.100 | 1.100 |
| 035 | 1.100 | 1.100 |
| 036 | 1.100 | 1.100 |
| 037 | 1.100 | 1.100 |
| 038 | 1.100 | 1.100 |
| 039 | 1.100 | 1.100 |
| 040 | 1.100 | 1.100 |
| 041 | 1.100 | 1.100 |
| 042 | 1.100 | 1.100 |
| 043 | 1.100 | 1.100 |
| 044 | 1.100 | 1.100 |
| 045 | 1.100 | 1.100 |
| 046 | 1.100 | 1.100 |
| 047 | 1.100 | 1.100 |
| 048 | 1.100 | 1.100 |
| 049 | 1.100 | 1.100 |
| 050 | 1.100 | 1.100 |
| 051 | 1.100 | 1.100 |
| 052 | 1.100 | 1.100 |
| 053 | 1.100 | 1.100 |
| 054 | 1.100 | 1.100 |
| 055 | 1.100 | 1.100 |
| 056 | 1.100 | 1.100 |
| 057 | 1.100 | 1.100 |
| 058 | 1.100 | 1.100 |
| 059 | 1.100 | 1.100 |
| 060 | 1.100 | 1.100 |
| 061 | 1.100 | 1.100 |
| 062 | 1.100 | 1.100 |
| 063 | 1.100 | 1.100 |
| 064 | 1.100 | 1.100 |
| 065 | 1.100 | 1.100 |
| 066 | 1.100 | 1.100 |
| 067 | 1.100 | 1.100 |
| 068 | 1.100 | 1.100 |
| 069 | 1.100 | 1.100 |
| 070 | 1.100 | 1.100 |
| 071 | 1.100 | 1.100 |
| 072 | 1.100 | 1.100 |
| 073 | 1.100 | 1.100 |
| 074 | 1.100 | 1.100 |
| 075 | 1.100 | 1.100 |
| 076 | 1.100 | 1.100 |
| 077 | 1.100 | 1.100 |
| 078 | 1.100 | 1.100 |
| 079 | 1.100 | 1.100 |
| 080 | 1.100 | 1.100 |
| 081 | 1.100 | 1.100 |
| 082 | 1.100 | 1.100 |
| 083 | 1.100 | 1.100 |
| 084 | 1.100 | 1.100 |
| 085 | 1.100 | 1.100 |
| 086 | 1.100 | 1.100 |
| 087 | 1.100 | 1.100 |
| 088 | 1.100 | 1.100 |
| 089 | 1.100 | 1.100 |
| 090 | 1.100 | 1.100 |
| 091 | 1.100 | 1.100 |
| 092 | 1.100 | 1.100 |
| 093 | 1.100 | 1.100 |
| 094 | 1.100 | 1.100 |
| 095 | 1.100 | 1.100 |
| 096 | 1.100 | 1.100 |
| 097 | 1.100 | 1.100 |
| 098 | 1.100 | 1.100 |
| 099 | 1.100 | 1.100 |
| 100 | 1.100 | 1.100 |

[illegible]

NOTE ■ PREPARED STOCK

But Centimorph or its predecessor authorizes the Board of Directors, at its sole discretion, to issue up to 4,600,000 shares of senior preferred stock. The stock is issuable in whole, which may result in 0 to 4,600,000 shares.

NOTE 2: LONGMAN STOCKHOLDERS' INVESTMENT

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Տեղի ունեցող փոփոխությունները համապատասխանում են ժամանակակից տնտեսական իրավիճակին:

| | | | | | | |
|------|-----------|--------|-----------|--------|---------|--------|
| 2000 | 2,225,000 | 888.34 | 3,275,000 | 256.66 | 150,000 | 352.70 |
|------|-----------|--------|-----------|--------|---------|--------|

[illegible]

TABLE 10.1

STOCK COMPENSATION PLANS

Expected Volatility Assumptions

Under the provisions of our stock incentive plans, key employees and non-employee directors may be granted options to purchase shares of common stock at a price not less than its fair market value at the time of grant.

The Compensation Committee of our Board of Directors, which is responsible for determining the terms of our stock incentive plans, has determined that the expected volatility of our common stock is 22% for the period from January 1, 2001 to December 31, 2002. This determination is based on the historical volatility of our common stock over the period from January 1, 2001 to December 31, 2002.

The following table sets forth the expected volatility of our common stock for the period from January 1, 2001 to December 31, 2002. The expected volatility of our common stock is based on the historical volatility of our common stock over the period from January 1, 2001 to December 31, 2002.

| Period | Expected Volatility |
|--------------------------------------|---------------------|
| January 1, 2001 to December 31, 2002 | 22% |

The expected volatility of our common stock is based on the historical volatility of our common stock over the period from January 1, 2001 to December 31, 2002. The expected volatility of our common stock is based on the historical volatility of our common stock over the period from January 1, 2001 to December 31, 2002.

| | 2001 | 2002 | 2003 |
|-------------------------|---------|---------|---------|
| Expected lives | 4 years | 4 years | 4 years |
| Expected volatility | 22% | 22% | 22% |
| Risk-free interest rate | 2.18% | 4.01% | 4.25% |
| Dividend yield | 0.74% | 0.75% | 0% |

Expected term: This is the period of time over which the options are expected to remain outstanding. Historically, options granted have a maximum term of 10 years. The expected term of the options is determined by the expected life of the options. An increase in the expected term will increase compensation expense.

Expected Volatility: Actual changes in the market value of our stock are used to estimate the volatility assumption. The calculation of the expected volatility is based on the historical volatility of our common stock over the period from January 1, 2001 to December 31, 2002.

Risk-free interest rate: The risk-free interest rate is the rate of return on a U.S. Treasury bill with a maturity date equal to the expected term of the options. The risk-free interest rate is based on the historical risk-free interest rate over the period from January 1, 2001 to December 31, 2002.

Dividend yield: This is the annual rate of dividends per share over the expected life of the option. In July 2002, we paid the first dividend in the history of the company. Therefore, the rate value of options prior to 2003 is not affected by the dividend yield. An increase in the dividend yield will decrease compensation expense.

Expected term: The expected term of the options is determined by the expected life of the options. An increase in the expected term will increase compensation expense. The expected term of the options is based on the historical expected term of the options over the period from January 1, 2001 to December 31, 2002.

TABLE 13.13: EARNINGS PER SHARE

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-----------------------------|-------------|---------|-------------|---------|-------------|---------|
| Outstanding shares | 7,785,116 | 878,000 | 1,020,774 | 534,322 | 8,398,792 | 120,240 |
| Outstanding shares, diluted | 8,987,328 | 979,985 | 1,247,499 | 623,222 | 9,114,847 | 130,240 |
| Weighted average | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-----------------------------|-------------|---------|-------------|---------|-------------|---------|
| Outstanding shares | 7,785,116 | 878,000 | 1,020,774 | 534,322 | 8,398,792 | 120,240 |
| Outstanding shares, diluted | 8,987,328 | 979,985 | 1,247,499 | 623,222 | 9,114,847 | 130,240 |
| Weighted average | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

Stock Options Exercised

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-----------------------------|-------------|---------|-------------|---------|-------------|---------|
| Outstanding shares | 7,785,116 | 878,000 | 1,020,774 | 534,322 | 8,398,792 | 120,240 |
| Outstanding shares, diluted | 8,987,328 | 979,985 | 1,247,499 | 623,222 | 9,114,847 | 130,240 |
| Weighted average | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-----------------------------|-------------|---------|-------------|---------|-------------|---------|
| Outstanding shares | 7,785,116 | 878,000 | 1,020,774 | 534,322 | 8,398,792 | 120,240 |
| Outstanding shares, diluted | 8,987,328 | 979,985 | 1,247,499 | 623,222 | 9,114,847 | 130,240 |
| Weighted average | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-----------------------------|-------------|---------|-------------|---------|-------------|---------|
| Outstanding shares | 7,785,116 | 878,000 | 1,020,774 | 534,322 | 8,398,792 | 120,240 |
| Outstanding shares, diluted | 8,987,328 | 979,985 | 1,247,499 | 623,222 | 9,114,847 | 130,240 |
| Weighted average | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |
| Weighted average, diluted | (1,734,000) | 21.06 | (2,987,041) | 27.73 | (7,215,767) | 10.00 |

The following table summarizes information about our Earnings per Share (EPS) for the year ended May 31.

NOTES

NOTE 12: COMPUTATION OF EARNINGS PER SHARE

| | 2004 | 2003 | 2002 |
|---|---------|---------|---------|
| Net income available to common shareholders | \$ 428 | \$ 420 | \$ 410 |
| Weighted average common shares outstanding | 239 | 240 | 240 |
| Basic earnings per share | \$ 1.80 | \$ 1.75 | \$ 1.71 |
| Effect of restricted stock awards | 19 | 15 | 14 |
| Effect of stock options | 140 | 101 | 75 |
| Effect of convertible preferred stock | 200 | 200 | 200 |
| Adjusted earnings per share | \$ 2.80 | \$ 2.75 | \$ 2.71 |
| Adjusted earnings per share | \$ 2.75 | \$ 2.74 | \$ 2.74 |

NOTE 13: INCOME TAXES

The components of the provision for income taxes for the years ended May were as follows (in millions):

| | 2004 | 2003 | 2002 |
|--------------------------------|--------|--------|--------|
| Current | \$ 371 | \$ 32 | \$ 285 |
| Deferred | 54 | 20 | 30 |
| Change in valuation allowances | 85 | 20 | 4 |
| Total | \$ 510 | \$ 72 | \$ 319 |
| Effective tax rate | (21) | 36 | 40 |
| Change in effective tax rate | 57 | 75 | 21 |
| Total | \$ 567 | \$ 147 | \$ 340 |

A reconciliation of the statutory federal corporate tax rate in any other jurisdictions for the years ended May was as follows:

| | 2004 | 2003 | 2002 |
|-----------------|-------|-------|-------|
| U.S. federal | 35.0% | 35.0% | 35.0% |
| State and local | 2.3 | 6 | 2.4 |
| Foreign | 10.0 | 6.4 | 0 |
| Total | 47.3% | 47.4% | 37.4% |

A foreign withholding tax due in 2004 was primarily attributable to the corporate tax return on U.S. tax base described below. Other than anticipated operational results and the results of tax audits during 2004, but without taking into account anticipated audits, along with other factors, increased our ability to contest the foreign withholding tax.

| | 2004 | 2003 | 2002 |
|--------------------------------|---------|---------|---------|
| Current | \$ 310 | \$ 317 | \$ 301 |
| Deferred | 200 | 400 | 240 |
| Change in valuation allowances | 25 | 10 | 20 |
| Total | \$ 535 | \$ 727 | \$ 561 |
| Effective tax rate | (27) | 15 | 24 |
| Change in effective tax rate | \$ 1.25 | \$ 1.67 | \$ 1.34 |

2004, the net deferred tax liability of \$523 million is classified in long-term liabilities as a current deferred tax asset of \$429 million. The net deferred tax liability of \$523 million is classified in long-term liabilities as a current deferred tax asset of \$429 million and a net deferred tax liability of \$94 million.

The valuation allowances primarily represent amounts reserved for the future. The valuation allowances are based on the expected future tax rates and the expected future tax benefits.

Amounts of \$23 million were principally due to the preparation of the tax return for the year ended May 2004 that are not expected to be paid.

In August 2003, we received a favorable ruling from the U.S. Tax Court in Memphis over the tax treatment of engine maintenance costs. The Court held that these costs were deductible as necessary operating expenses and properly deductible for connection with Internal Revenue Service ("IRS") audit for the tax years 1993 and 1994. In 1995, we had proposed that these costs be treated as engine maintenance costs, capital expenditures that must be depreciated over several years, which would be expenses that are deducted immediately in the tax year. After settlement discussions, we agreed to pay \$70 million in cash and interest and filed a petition in Federal District Court for a complete refund of the amounts

FOOTNOTES

Postretirement benefits and plans

Carroll is our supplemental plan that provides a defined benefit to eligible U.S. retirees and their eligible dependents. U.S. employees covered by the principal plan become eligible for these benefits at 65 and older if they have permanent continuous service of at least 10 years with commencement of age 45 if hired prior to January 1, 1998 or at least 20 years after attainment of age 25 if hired on or after January 1, 1998.

The following table shows the change in the net pension liability for the year ended May 31, 2004 and a reconciliation of the funded status as of May 31, 2004 and 2003 in millions of dollars.

| | 2004 | 2003 | 2002 | 2001 |
|---|---------|---------|---------|---------|
| Change in Projected Benefit Obligation ("PBO") | | | | |
| PBO at beginning of year | \$7,112 | \$6,337 | \$5,360 | \$4,325 |
| Service cost | 236 | 224 | 20 | 77 |
| Interest cost | 490 | 438 | 23 | 25 |
| Acting as trustee | 641 | 164 | 34 | 23 |
| Settlements | (1,362) | (103) | (23) | (4) |
| Administrative expenses | 138 | 38 | 38 | 38 |
| Net change | 67 | 41 | 3 | (1) |
| PBO at end of year | \$7,179 | \$6,378 | \$5,363 | \$4,324 |
| Change in Plan Assets | | | | |
| Plan assets at beginning of year | \$5,825 | \$5,170 | \$4,325 | \$3,675 |
| Actual return based on plan assets | 744 | 1,462 | 18 | 7 |
| Contributions | 236 | 1,371 | 18 | 7 |
| Withdrawals | (1,362) | (103) | (23) | (4) |
| Administrative expenses | 138 | 38 | 38 | 38 |
| Net change | \$776 | \$1,776 | \$4 | \$5 |
| Plan assets at end of year | \$6,601 | \$6,946 | \$4,329 | \$3,680 |
| Funded status at end of year | \$6,601 | \$6,946 | \$4,329 | \$3,680 |
| Amount recognized in the Balance Sheet at May 31 | | | | |
| Prepaid pension cost | \$123 | \$283 | \$404 | \$421 |
| Accrued pension cost | (220) | (198) | (18) | (18) |
| Net amount | (97) | (70) | (18) | (18) |
| Net amount at end of year | \$6,601 | \$6,946 | \$4,329 | \$3,680 |

67. 11 1000 11 1000

Our pension plans including the following contributions to 31 May 2008 and

[illegible]

The following table summarizes the results of the regression analysis.

[illegible]

an indicator of the assets currently available to fund various ...

Each subpopulation was based on a combination of the 49 to 1

There is the guidance, shared by order to eliminate the need to

[illegible]

NAME OF THE PARTY: PARTY NO:

1. The amount of 2000 placed on the 6th day of the month of January 2000 is the amount of 2000 placed on the 6th day of the month of January 2000.

[illegible][illegible]

11. The information submitted was not used in the review of the 2004 and 2005 reviews.

FedEx Financial Statements

| FedEx Financial Statements | | | | | |
|----------------------------|--------|--------|--------|--------|--------|
| | 2004 | 2003 | 2002 | 2001 | 2000 |
| Operating income | \$ 374 | \$ 374 | \$ 346 | \$ 185 | \$ 187 |
| Operating expenses | 498 | 428 | 409 | 15 | 25 |
| Operating income | 374 | 374 | 346 | 170 | 162 |
| Operating income | \$ 343 | \$ 343 | \$ 343 | \$ 343 | \$ 343 |
| Operating income | 6.78% | 6.78% | 6.78% | 6.78% | 6.78% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |

| FedEx Financial Statements | | | | | |
|----------------------------|--------|--------|--------|--------|--------|
| | 2004 | 2003 | 2002 | 2001 | 2000 |
| Operating income | \$ 374 | \$ 374 | \$ 346 | \$ 185 | \$ 187 |
| Operating expenses | 498 | 428 | 409 | 15 | 25 |
| Operating income | 374 | 374 | 346 | 170 | 162 |
| Operating income | \$ 343 | \$ 343 | \$ 343 | \$ 343 | \$ 343 |
| Operating income | 6.78% | 6.78% | 6.78% | 6.78% | 6.78% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |

These amounts are based on estimates of 25% of the amounts. Actual results may vary significantly from these estimates.

| FedEx Financial Statements | | | | | |
|----------------------------|--------|--------|--------|--------|--------|
| | 2004 | 2003 | 2002 | 2001 | 2000 |
| Operating income | \$ 374 | \$ 374 | \$ 346 | \$ 185 | \$ 187 |
| Operating expenses | 498 | 428 | 409 | 15 | 25 |
| Operating income | 374 | 374 | 346 | 170 | 162 |
| Operating income | \$ 343 | \$ 343 | \$ 343 | \$ 343 | \$ 343 |
| Operating income | 6.78% | 6.78% | 6.78% | 6.78% | 6.78% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |
| Operating income | 2.4% | 2.4% | 2.4% | 2.4% | 2.4% |

However, by 2004, there was a significant increase in operating income after the increase in operating income. The increase in operating income was not a significant increase.

2004, a 2004 benefit expense

Defined Contribution Plans

Profit sharing and other defined contribution plans are in place.

for all company employees, which are determined annually by our Board of Directors. Other plans provide matching funds based on employee contributions to 401(k) plans. Expenses were \$10 million in 2004, \$10 million in 2003, and \$15 million in 2002.

NOTE 1: BUSINESS SEGMENT INFORMATION

The table below for the periods presented are primarily responsible for FedEx Express, FedEx Ground, FedEx Freight, and FedEx Custom Critical. These businesses form the core of our reportable segments. Other businesses in the FedEx portfolio are FedEx Trade Networks, FedEx Supply Chain Services, FedEx Custom Critical, and FedEx Transportation Services. Management evaluates segment performance based on operating income.

In 2004, we changed the reporting and responsibility relationships of our smaller business units so that they now report directly to a chief executive officer. The following businesses are included in our reportable segments:

| FedEx Express Segment | |
|-------------------------------|--|
| FedEx Express | |
| FedEx Ground Segment | |
| FedEx Ground | |
| FedEx Freight Segment | |
| FedEx Freight | |
| FedEx Custom Critical Segment | |
| FedEx Custom Critical | |
| FedEx Supply Chain Services | |
| FedEx Supply Chain Services | |
| FedEx Trade Networks | |
| FedEx Trade Networks | |
| FedEx Transportation Services | |
| FedEx Transportation Services | |

NOTE 10. CONTINGENT LIABILITIES—Continued

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|-------------------------------------|-----------|----------|----------|--------|--------|-----------|
| Accrued interest | \$ 1,047 | \$ 1,291 | \$ 2,469 | \$ 625 | \$ 63 | \$ 24,710 |
| Accrued interest | 18,487 | 3,581 | 2,442 | - | 64 | 23,487 |
| Accrued interest | 18,487 | 2,490 | 2,259 | - | 64 | 23,487 |
| Contingent liability and derivative | | | | | | |
| Accrued interest | \$ 874 | \$ 164 | \$ 82 | \$ 13 | \$ 285 | \$ 1,305 |
| Contingent liability | 613 | - | 81 | - | 380 | 35 |
| Contingent liability | 874 | 164 | 81 | - | 380 | 1,340 |
| Derivative interest | \$ 874 | \$ 164 | \$ 82 | \$ 13 | \$ 285 | \$ 1,340 |
| Contingent liability | 613 | 494 | 180 | - | 1 | 274 |
| Contingent liability | 801 | 4 | 180 | - | 2 | 274 |
| Contingent liability | \$ 18,487 | \$ 2,490 | \$ 2,259 | \$ 625 | \$ 63 | \$ 24,710 |
| Contingent liability | 18,487 | 2,490 | 2,259 | - | 64 | 23,487 |
| Contingent liability | 18,487 | 2,490 | 2,259 | - | 64 | 23,487 |

The above table represents the amounts of contingent liabilities and derivative interest as of the end of each year. The amounts are presented in thousands of dollars.

| | 2004 | 2003 | 2002 | 2001 | 2000 | 1999 |
|----------------------|--------|--------|-------|-------|--------|----------|
| Contingent liability | \$ 874 | \$ 164 | \$ 82 | \$ 13 | \$ 285 | \$ 1,305 |
| Contingent liability | 613 | - | 81 | - | 380 | 35 |
| Contingent liability | 874 | 164 | 81 | - | 380 | 1,340 |

| obligations in the future, with the corresponding liability not due | | | | | |
|---|--|--|--|--|--|
| " | | | | | |
| or future obligations because of future events and events are not known | | | | | |
| " | | | | | |
| " | | | | | |

Other matters

In accordance with certain hypothetical primary rights or claims, the company may be able to settle or settle in the future, based on the facts, the settlement is not known.

" Settlement is not known.

Other matters

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| " | | | | | |

Company's financial position is not known, but the company's financial position is not known.

" Settlement is not known, but the company's financial position is not known.

Other matters

Special facilities may be used to settle the company's financial position, but the company's financial position is not known.

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The company's financial position is not known, but the company's financial position is not known.

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Company's financial position is not known, but the company's financial position is not known.

" Settlement is not known, but the company's financial position is not known.

NOTE 16: VARIABLE INTEREST ENTITIES

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The company's financial position is not known, but the company's financial position is not known.

" Settlement is not known, but the company's financial position is not known.

was \$100 million. The company's financial position is not known, but the company's financial position is not known.

" Settlement is not known, but the company's financial position is not known.

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" Settlement is not known, but the company's financial position is not known.

NOTE COMMENTS

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" Settlement is not known, but the company's financial position is not known.

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" Settlement is not known, but the company's financial position is not known.

NOTE ■ LEGAL PROCEEDINGS

[illegible]

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and the way we use the word "the" is not the same as the way we use the word "a". The word "the" is used to refer to a specific thing, while the word "a" is used to refer to a general thing. For example, "the cat" refers to a specific cat, while "a cat" refers to any cat.

[illegible]

With regard to medical care, with the DSI, there is no right of access to the medical records of the deceased. The will continues to govern medical care for

that it is probable we will ultimately realize the remaining 300 million accounts. But that does not let us forget that many companies on the DOT's list already operate 250 accounts or less of the ultimate customers we are trying to reach. So we will also need to identify the top 50 million of companies that are already operating 250 accounts or less. We will then make sure that the 300 million accounts for the remaining 100 million companies are not the same as the 300 million accounts for the 50 million companies.

היה זה המסע האחרון של המלחמה. המלחמה הייתה מלחמה
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הערה: יש להבהיר כי המידע המוצג אינו מהווה ייעוץ או המלצה לרכוש או למכור כל ני"מ, ויש להתייעץ עם יועץ פיננסי לפני כל החלטה.

entiment. We have entered any liability with respect to these matters and, therefore, we do not intend to defend ourselves in this regard.

In the context of management the appropriate wording, any action taken or decision made will not make any universally valid statement. The correct response requires an appreciation of such flows.

Also, see Note 7 for discussion of major legal proceedings.

7.14 **הודעה על תשלום המעורבות של יועץ המעורבות** – חלק מהמחיר

LEI Nº 01/97, DE 16 DE ABRIL DE 1997, DO GOV. DO ESTADO DO RIO
DE JANEIRO, QUE CRIA O SISTEMA DE LICENCIAMENTO E REGISTRO

NOTE 12: RELATED PARTY TRANSACTIONS

[illegible]

As a result, the average of the 50% sample of all companies that provided information broadly increased from 1998 to 2004, suggesting that companies with better reputations and/or greater resources can benefit from being able to communicate in a timely way. All companies in the sample were not included in the communication and were directly by the benefit of the third party and by Durkin's 2004 book, communication is not a simple matter of communication (44) (45)

[illegible][illegible]

HQS, the City of Memphis and Shelby County, will spend to pay \$5 million a year for the highest of the 35 years of the agreement if HQS's terminals is used for the next

business center by the Memphis and Shelby County Sewerage Commission. The plant will be the first of its kind in the South and will be the largest of its kind in the world.

[illegible]

was in 1990 the first time that the number of active jobs had grown since 1980. There were positive, but not statistically significant, effects on the independent variable of the dependent variable as well as the value of the non-zero effect on the dependent variable.

431-10 MONDAY MAY 4/04

NOTE 20: SUMMARY OF QUARTERLY OPERATING RESULTS (UNAUDITED)

| 2004 | 2003 | 2002 | 2001 | 2000 |
|------------------------|---------|---------|---------|---------|
| Revenue | \$5,867 | \$6,320 | \$6,463 | \$7,081 |
| Operating expenses | 236 | 183 | 372 | 409 |
| Operating income | 5,631 | 6,137 | 6,091 | 6,672 |
| Other income (expense) | 0.40 | 0.31 | 0.04 | 0.38 |
| Income before taxes | 5,631 | 6,137 | 6,091 | 6,672 |
| Income tax expense | 1,345 | \$1,361 | \$1,532 | \$1,810 |
| Net income | \$4,286 | \$4,776 | \$4,559 | \$4,862 |
| Other income (expense) | 0.40 | 0.31 | 0.04 | 0.38 |
| Income before taxes | 5,631 | 6,137 | 6,091 | 6,672 |
| Income tax expense | 1,345 | \$1,361 | \$1,532 | \$1,810 |
| Net income | \$4,286 | \$4,776 | \$4,559 | \$4,862 |

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors and shareholders
FedEx Corporation

We have audited the accompanying consolidated balance sheet of FedEx Corporation as of May 31, 2004 and 2003 and the related consolidated statements of income, changes in stockholders' equity, comprehensive income (loss), and cash flows for each of the three years in the period ended May 31, 2004. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. A material misstatement is one that could influence the economic decisions of users taken on the basis of the financial statements.

Our audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. It also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of FedEx Corporation at May 31, 2004 and 2003 and the consolidated results of its operations and its cash flows for each of the three years in the period ended May 31, 2004, in conformity with U.S. generally accepted accounting principles.

As discussed in Note 3 to the consolidated financial statements, the Company adopted Statement of Financial Accounting Standards No. 162, Derivatives and Other Intangible Assets in 2002.

Kenneth A. Young, CPA

Memphis, Tennessee
June 1, 2004

Glossary

Accounting equation the process used to capture the effect of economic events. Assets = Liabilities + Equity

Accounting Principles Board (APB) the principal body responsible for the issuance of authoritative accounting standards

Account entry which is a summary of the financial and accounting information related to an account

Accounts payable charges due to suppliers or other parties and recorded as a liability on the balance sheet

Accounts receivable due from customers and recorded as an asset on the balance sheet

Accounts receivable aging schedule schedule of accounts receivable by month and by age, used for estimating the degree of collectibility

Accrual accounting measurement in the accounting period of the economic events that have occurred, whether or not cash has been received or paid

Accrual system system of accounting which recognizes revenue when it is earned and expenses when they are incurred

Adjusted income income that has been adjusted for non-recurring items

Adjusted liability liability after adjustment for non-recurring items

Adjusted receivable receivable after adjustment for non-recurring items

Accumulated liability obligation ALBO the accumulated liability of a company's obligations

Accumulated liability obligation ALBO the accumulated liability of a company's obligations

Accumulated liability obligation ALBO the accumulated liability of a company's obligations

Accumulated liability obligation ALBO the accumulated liability of a company's obligations

Adjusted equity equity after adjustment for non-recurring items

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to include all the items reported in the statement of financial position.

Capital recycling. The process of exchanging the purchase of operational assets.

Capital issues. outlay for purchases that are reported separately as losses.

Capital markets. markets that provide the allocation of resources efficiently.

cash basis. a method of accounting in which cash is the only asset and liability recorded.

cash adjustments. adjustments during a reporting period from transactions related to selling goods and services.

cash flow statement. a statement of the cash and cash equivalents of an entity.

cash flow statement. a statement of the cash and cash equivalents of an entity.

cash equivalents. assets that are readily convertible into cash and are subject to an insignificant risk of change in value.

cash flow statement. a statement of the cash and cash equivalents of an entity.

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De plus, les données de la table 1 indiquent que les personnes âgées de 65 ans et plus ont une probabilité plus élevée de ne pas travailler que les personnes de moins de 65 ans.

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1. *Journal of the American Medical Association*, 1997; 277: 1033-1038.

Environ Biol Fish (2015) 98:101–110

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|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|

if $\phi \in \mathcal{P}_0$, then the \mathcal{P} -norm in (1.1) is

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doi:10.1017/S0022292412001611 Printed in the United Kingdom

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Figure 1. (a) Schematic diagram of the experimental setup. (b) Photograph of the experimental setup.

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$$h_0 = \frac{1}{2} \left(\frac{1}{\rho_0} + \frac{1}{\rho_1} \right) \quad (5)$$

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| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|

Straight-line line an idealized and representative approximation of the actual shape of a curve.

Straight-line method recording interest each period in the same dollar amount.

Subordinated debenture the right not entitled to receive any liquidation payments until the claims of other specified debt claims are satisfied.

Technological event a significant development that takes place after the company's fiscal year-end that is a technological advance or event.

Voluntary budget record of a group of voluntary accounts accumulated during a period, not general ledger control accounts.

Non-volatile effects method one that does not allow the company to change the effect of a change in the accounting method on the financial statements.

Form of the rate (FIFO method) a method of accounting for a change in the accounting method that is a fraction that is a function of the rate.

Proprietary financial statements financial statements that are not required to be audited by the public company accounting.

Standard a set of rules or principles that are used to measure and compare performance.

Transfer account an account that is used to transfer funds from one account to another.

Technological feasibility established when the company has the ability to develop the product or service and the market for the product or service is sufficient to justify the investment.

Temporary accounts accounts that are used to record transactions that are not permanent.

Depreciation allowance the difference between the cost and the accumulated depreciation.

Asset a resource that is owned by the company and has the potential to provide future economic benefits.

Liability a claim against the company that is owed by the company to another party.

Equity the difference between the assets and liabilities of the company.

Revenue the amount of money that the company receives from its customers.

Expense the amount of money that the company spends to produce its goods or services.

Net income the difference between the revenue and the expenses of the company.

Income statement a financial statement that shows the revenue, expenses, and net income of the company.

Balance sheet a financial statement that shows the assets, liabilities, and equity of the company.

Statement of cash flows a financial statement that shows the cash inflows and outflows of the company.

Statement of retained earnings a financial statement that shows the changes in the retained earnings of the company.

Journal entry a record of a business transaction that is used to update the accounting records.

Debit an entry in the accounting records that increases an asset account or decreases a liability or equity account.

Credit an entry in the accounting records that decreases an asset account or increases a liability or equity account.

Accounting cycle a series of steps that are used to record and summarize the business transactions.

Accounting equation the relationship between the assets, liabilities, and equity of the company.

Accounting period a specific time interval for which the accounting records are prepared.

Accounting method a set of rules and procedures that are used to record and summarize the business transactions.

Accounting system a set of procedures and controls that are used to ensure the accuracy and reliability of the accounting records.

Materiality the concept that a transaction or event is significant enough to affect the financial statements.

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Accounting Standards Index

$$M_{\text{eff}} = \frac{M}{1 + \frac{M}{M_0}} \quad (1)$$

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41

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- ² <http://www.fishbase.org>. Date accessed: 15 Oct 2004.

F

- THEOREM 1.** Let $\{X_n\}_{n \geq 0}$ be a sequence of independent random variables with common distribution function F . Then the following conditions are equivalent:

F

- Figure 4. The effect of the initial concentration of the monomer on the polymerization of 2-methyl-2-butene initiated by TiCl_4 in CH_2Cl_2 at -78°C . The reaction was carried out in a 100 mL three-necked round-bottomed flask equipped with a magnetic stirrer, a thermometer, and a nitrogen inlet. The reaction mixture was stirred for 10 min at -78°C before the addition of the monomer. The reaction was stopped by the addition of methanol. The polymer was isolated by precipitation into methanol and dried under vacuum at 40°C for 24 h. The polymer yield was determined by gravimetry. The polymerization was carried out in a 100 mL three-necked round-bottomed flask equipped with a magnetic stirrer, a thermometer, and a nitrogen inlet. The reaction mixture was stirred for 10 min at -78°C before the addition of the monomer. The reaction was stopped by the addition of methanol. The polymer was isolated by precipitation into methanol and dried under vacuum at 40°C for 24 h. The polymer yield was determined by gravimetry.

3

- THE 1914-15 Season of the New York State
1914-15
The 1914-15 season was a very dry one for the State of New York. The rainfall was only 40.5 inches, which is less than the normal of 45.5 inches. The temperature was also below normal, the average being 54.5 degrees Fahrenheit, compared with the normal of 57.5 degrees Fahrenheit. The result was a very early start to the season, and the crops were generally small. The wheat crop was particularly small, and the corn crop was also small. The total crop was only 1,100,000 bushels, compared with the normal of 1,500,000 bushels. The value of the crops was only \$1,100,000, compared with the normal of \$1,500,000. The result was a very small crop, and the value was also small. The 1914-15 season was a very dry one for the State of New York.

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Present and Future Value Tables

This table shows the future value of \$1 at various interest rates and time periods. It is used to calculate the future value of any single investment.

Table 1 Future Value of \$1
FV = \$1

| Years | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 1.0100 | 1.0200 | 1.0300 | 1.0400 | 1.0500 | 1.0600 | 1.0700 | 1.0800 | 1.0900 | 1.1000 | 1.1100 | 1.1200 | 1.1300 | 1.1400 | 1.1500 | 1.1600 | 1.1700 | 1.1800 | 1.1900 | 1.2000 |
| 2 | 1.0201 | 1.0404 | 1.0609 | 1.0816 | 1.1025 | 1.1236 | 1.1449 | 1.1664 | 1.1881 | 1.2100 | 1.2321 | 1.2544 | 1.2769 | 1.2996 | 1.3225 | 1.3456 | 1.3689 | 1.3924 | 1.4161 | 1.4400 |
| 3 | 1.0303 | 1.0608 | 1.0927 | 1.1260 | 1.1607 | 1.1968 | 1.2343 | 1.2732 | 1.3135 | 1.3553 | 1.3985 | 1.4432 | 1.4894 | 1.5371 | 1.5863 | 1.6370 | 1.6892 | 1.7429 | 1.7981 | 1.8548 |
| 4 | 1.0406 | 1.0816 | 1.1254 | 1.1720 | 1.2214 | 1.2736 | 1.3286 | 1.3864 | 1.4462 | 1.5081 | 1.5721 | 1.6383 | 1.7067 | 1.7773 | 1.8502 | 1.9254 | 1.9999 | 2.0768 | 2.1561 | 2.2378 |
| 5 | 1.0510 | 1.0937 | 1.1403 | 1.1908 | 1.2452 | 1.3036 | 1.3660 | 1.4324 | 1.5028 | 1.5773 | 1.6559 | 1.7387 | 1.8258 | 1.9172 | 2.0130 | 2.1133 | 2.2181 | 2.3274 | 2.4412 | 2.5595 |
| 6 | 1.0615 | 1.1061 | 1.1568 | 1.2136 | 1.2756 | 1.3428 | 1.4152 | 1.4928 | 1.5757 | 1.6639 | 1.7575 | 1.8566 | 1.9613 | 2.0717 | 2.1879 | 2.3099 | 2.4378 | 2.5717 | 2.7116 | 2.8575 |
| 7 | 1.0721 | 1.1179 | 1.1707 | 1.2296 | 1.2937 | 1.3639 | 1.4393 | 1.5199 | 1.6058 | 1.6971 | 1.7939 | 1.8963 | 2.0044 | 2.1183 | 2.2381 | 2.3639 | 2.4958 | 2.6338 | 2.7779 | 2.9281 |
| 8 | 1.0828 | 1.1298 | 1.1847 | 1.2458 | 1.3120 | 1.3843 | 1.4618 | 1.5446 | 1.6328 | 1.7265 | 1.8258 | 1.9308 | 2.0416 | 2.1583 | 2.2809 | 2.4095 | 2.5442 | 2.6850 | 2.8319 | 2.9850 |
| 9 | 1.0936 | 1.1418 | 1.1988 | 1.2620 | 1.3312 | 1.4066 | 1.4883 | 1.5755 | 1.6683 | 1.7667 | 1.8708 | 1.9807 | 2.0965 | 2.2183 | 2.3462 | 2.4803 | 2.6206 | 2.7671 | 2.9200 | 3.0793 |
| 10 | 1.1046 | 1.1539 | 1.2131 | 1.2784 | 1.3507 | 1.4292 | 1.5140 | 1.6052 | 1.7028 | 1.8069 | 1.9176 | 2.0350 | 2.1592 | 2.2903 | 2.4284 | 2.5736 | 2.7260 | 2.8856 | 3.0525 | 3.2268 |
| 11 | 1.1157 | 1.1661 | 1.2274 | 1.2948 | 1.3692 | 1.4508 | 1.5387 | 1.6330 | 1.7338 | 1.8412 | 1.9553 | 2.0762 | 2.2039 | 2.3385 | 2.4801 | 2.6288 | 2.7846 | 2.9476 | 3.1179 | 3.2956 |
| 12 | 1.1269 | 1.1784 | 1.2418 | 1.3113 | 1.3888 | 1.4736 | 1.5648 | 1.6625 | 1.7668 | 1.8778 | 1.9956 | 2.1203 | 2.2520 | 2.3908 | 2.5367 | 2.6898 | 2.8501 | 3.0176 | 3.1924 | 3.3746 |
| 13 | 1.1382 | 1.1909 | 1.2564 | 1.3280 | 1.4087 | 1.4966 | 1.5910 | 1.6920 | 1.8000 | 1.9149 | 2.0368 | 2.1658 | 2.3020 | 2.4454 | 2.5961 | 2.7542 | 2.9198 | 3.0930 | 3.2738 | 3.4623 |
| 14 | 1.1496 | 1.2035 | 1.2712 | 1.3458 | 1.4297 | 1.5218 | 1.6214 | 1.7286 | 1.8438 | 1.9670 | 2.0973 | 2.2348 | 2.3796 | 2.5318 | 2.6916 | 2.8591 | 3.0344 | 3.2176 | 3.4087 | 3.6078 |
| 15 | 1.1611 | 1.2152 | 1.2851 | 1.3618 | 1.4489 | 1.5453 | 1.6503 | 1.7640 | 1.8866 | 2.0173 | 2.1562 | 2.3034 | 2.4581 | 2.6204 | 2.7904 | 2.9692 | 3.1569 | 3.3535 | 3.5590 | 3.7734 |
| 16 | 1.1727 | 1.2269 | 1.3000 | 1.3788 | 1.4701 | 1.5716 | 1.6826 | 1.8033 | 1.9339 | 2.0736 | 2.2225 | 2.3808 | 2.5477 | 2.7234 | 2.9079 | 3.1014 | 3.3040 | 3.5157 | 3.7365 | 3.9664 |
| 17 | 1.1844 | 1.2397 | 1.3152 | 1.3961 | 1.4905 | 1.5962 | 1.7124 | 1.8393 | 1.9761 | 2.1220 | 2.2771 | 2.4426 | 2.6178 | 2.8019 | 2.9950 | 3.1972 | 3.4086 | 3.6293 | 3.8593 | 4.0986 |
| 18 | 1.1962 | 1.2521 | 1.3300 | 1.4129 | 1.5114 | 1.6214 | 1.7430 | 1.8755 | 2.0181 | 2.1732 | 2.3389 | 2.5154 | 2.7019 | 2.8976 | 3.1026 | 3.3170 | 3.5409 | 3.7744 | 4.0175 | 4.2701 |
| 19 | 1.2081 | 1.2643 | 1.3445 | 1.4294 | 1.5320 | 1.6453 | 1.7706 | 1.9071 | 2.0548 | 2.2139 | 2.3836 | 2.5641 | 2.7556 | 2.9573 | 3.1694 | 3.3919 | 3.6249 | 3.8684 | 4.1215 | 4.3841 |
| 20 | 1.2201 | 1.2765 | 1.3589 | 1.4458 | 1.5525 | 1.6699 | 1.7993 | 1.9400 | 2.0920 | 2.2564 | 2.4324 | 2.6191 | 2.8166 | 3.0250 | 3.2444 | 3.4748 | 3.7163 | 3.9689 | 4.2326 | 4.5073 |

TABLE 2
Page 1000 Value 11 1/2[illegible]

9
Eva

$$\frac{1}{\lambda_1 \lambda_2} = \frac{1}{\lambda_1 - \lambda_2} \left(\frac{1}{\lambda_1} - \frac{1}{\lambda_2} \right)$$

| | 3.5% | 3.75% | 4.0% | 4.25% | 4.5% | 5.0% | 5.5% | 6.0% | 7.0% | 8.0% | 9.0% | 10.0% | 11.0% | 12.0% | 20.0% |
|----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 0.00010 | 0.00012 | 0.00014 | 0.00016 | 0.00018 | 0.00020 | 0.00022 | 0.00024 | 0.00026 | 0.00028 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 |
| 2 | 0.00016 | 0.00018 | 0.00020 | 0.00022 | 0.00024 | 0.00026 | 0.00028 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 |
| 3 | 0.00020 | 0.00022 | 0.00024 | 0.00026 | 0.00028 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 |
| 4 | 0.00023 | 0.00025 | 0.00027 | 0.00029 | 0.00031 | 0.00033 | 0.00035 | 0.00037 | 0.00039 | 0.00041 | 0.00043 | 0.00045 | 0.00047 | 0.00049 | 0.00051 |
| 5 | 0.00026 | 0.00028 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 |
| 6 | 0.00028 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 |
| 7 | 0.00030 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 |
| 8 | 0.00032 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 |
| 9 | 0.00034 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 |
| 10 | 0.00036 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 |
| 11 | 0.00038 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 |
| 12 | 0.00040 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 |
| 13 | 0.00042 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 |
| 14 | 0.00044 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 |
| 15 | 0.00046 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 |
| 16 | 0.00048 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 |
| 17 | 0.00050 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 |
| 18 | 0.00052 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 |
| 19 | 0.00054 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 |
| 20 | 0.00056 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 |
| 21 | 0.00058 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 |
| 22 | 0.00060 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 |
| 23 | 0.00062 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 |
| 24 | 0.00064 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 |
| 25 | 0.00066 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 |
| 26 | 0.00068 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 | 0.00096 |
| 27 | 0.00070 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 | 0.00096 | 0.00098 |
| 28 | 0.00072 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 | 0.00096 | 0.00098 | 0.00100 |
| 29 | 0.00074 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 | 0.00096 | 0.00098 | 0.00100 | 0.00102 |
| 30 | 0.00076 | 0.00078 | 0.00080 | 0.00082 | 0.00084 | 0.00086 | 0.00088 | 0.00090 | 0.00092 | 0.00094 | 0.00096 | 0.00098 | 0.00100 | 0.00102 | 0.00104 |

This table shows the future value of an annuity due of \$1 at various interest rates (*i*) and time periods (*n*). It is used to calculate the future value of any series of equal payments made at the beginning of each compounding period.

TABLE 5 Future Value of an Annuity Due of \$1

$$FVAD = \left(\frac{1 + i}{i} \right) \left[\frac{(1 + i)^n - 1}{i} \right] = \frac{(1 + i)^n - 1}{i} + (1 + i)^n$$

| <i>n</i> | 1.0% | 1.5% | 2.0% | 2.5% | 3.0% | 3.5% | 4.0% | 4.5% | 5.0% | 5.5% | 6.0% | 6.5% | 7.0% | 7.5% | 8.0% | 8.5% | 9.0% | 9.5% | 10.0% | 11.0% | 12.0% | 20.0% |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1.0100 | 1.0150 | 1.0200 | 1.0250 | 1.0300 | 1.0350 | 1.0400 | 1.0450 | 1.0500 | 1.0550 | 1.0600 | 1.0650 | 1.0700 | 1.0750 | 1.0800 | 1.0850 | 1.0900 | 1.0950 | 1.1000 | 1.1100 | 1.1200 | 1.2000 |
| 2 | 2.0201 | 2.0452 | 2.0703 | 2.0954 | 2.1205 | 2.1456 | 2.1707 | 2.1958 | 2.2209 | 2.2460 | 2.2711 | 2.2962 | 2.3213 | 2.3464 | 2.3715 | 2.3966 | 2.4217 | 2.4468 | 2.4719 | 2.5020 | 2.5321 | 2.6800 |
| 3 | 3.0304 | 3.0759 | 3.1214 | 3.1669 | 3.2124 | 3.2579 | 3.3034 | 3.3489 | 3.3944 | 3.4399 | 3.4854 | 3.5309 | 3.5764 | 3.6219 | 3.6674 | 3.7129 | 3.7584 | 3.8039 | 3.8494 | 3.9049 | 3.9604 | 4.2400 |
| 4 | 4.0410 | 4.1020 | 4.1630 | 4.2240 | 4.2850 | 4.3460 | 4.4070 | 4.4680 | 4.5290 | 4.5900 | 4.6510 | 4.7120 | 4.7730 | 4.8340 | 4.8950 | 4.9560 | 5.0170 | 5.0780 | 5.1390 | 5.2000 | 5.2610 | 5.6000 |
| 5 | 5.0517 | 5.1282 | 5.2047 | 5.2812 | 5.3577 | 5.4342 | 5.5107 | 5.5872 | 5.6637 | 5.7402 | 5.8167 | 5.8932 | 5.9697 | 6.0462 | 6.1227 | 6.1992 | 6.2757 | 6.3522 | 6.4287 | 6.5052 | 6.5817 | 6.9600 |
| 6 | 6.0626 | 6.1546 | 6.2466 | 6.3386 | 6.4306 | 6.5226 | 6.6146 | 6.7066 | 6.7986 | 6.8906 | 6.9826 | 7.0746 | 7.1666 | 7.2586 | 7.3506 | 7.4426 | 7.5346 | 7.6266 | 7.7186 | 7.8106 | 7.9026 | 8.3200 |
| 7 | 7.0737 | 7.1812 | 7.2887 | 7.3962 | 7.5037 | 7.6112 | 7.7187 | 7.8262 | 7.9337 | 8.0412 | 8.1487 | 8.2562 | 8.3637 | 8.4712 | 8.5787 | 8.6862 | 8.7937 | 8.9012 | 9.0087 | 9.1162 | 9.2237 | 9.6800 |
| 8 | 8.0850 | 8.2070 | 8.3290 | 8.4510 | 8.5730 | 8.6950 | 8.8170 | 8.9390 | 9.0610 | 9.1830 | 9.3050 | 9.4270 | 9.5490 | 9.6710 | 9.7930 | 9.9150 | 10.0370 | 10.1590 | 10.2810 | 10.4030 | 10.5250 | 11.0000 |
| 9 | 9.0965 | 9.2340 | 9.3715 | 9.5090 | 9.6465 | 9.7840 | 9.9215 | 10.0590 | 10.1965 | 10.3340 | 10.4715 | 10.6090 | 10.7465 | 10.8840 | 11.0215 | 11.1590 | 11.2965 | 11.4340 | 11.5715 | 11.7090 | 11.8465 | 12.3400 |
| 10 | 10.1082 | 10.2602 | 10.4122 | 10.5642 | 10.7162 | 10.8682 | 11.0202 | 11.1722 | 11.3242 | 11.4762 | 11.6282 | 11.7802 | 11.9322 | 12.0842 | 12.2362 | 12.3882 | 12.5402 | 12.6922 | 12.8442 | 12.9962 | 13.1482 | 13.6600 |
| 11 | 11.1202 | 11.2862 | 11.4522 | 11.6182 | 11.7842 | 11.9502 | 12.1162 | 12.2822 | 12.4482 | 12.6142 | 12.7802 | 12.9462 | 13.1122 | 13.2782 | 13.4442 | 13.6102 | 13.7762 | 13.9422 | 14.1082 | 14.2742 | 14.4402 | 14.9800 |
| 12 | 12.1325 | 12.3132 | 12.4939 | 12.6746 | 12.8553 | 13.0360 | 13.2167 | 13.3974 | 13.5781 | 13.7588 | 13.9395 | 14.1202 | 14.3009 | 14.4816 | 14.6623 | 14.8430 | 15.0237 | 15.2044 | 15.3851 | 15.5658 | 15.7465 | 16.3000 |
| 13 | 13.1450 | 13.3402 | 13.5354 | 13.7306 | 13.9258 | 14.1210 | 14.3162 | 14.5114 | 14.7066 | 14.9018 | 15.0970 | 15.2922 | 15.4874 | 15.6826 | 15.8778 | 16.0730 | 16.2682 | 16.4634 | 16.6586 | 16.8538 | 17.0490 | 17.6100 |
| 14 | 14.1577 | 14.3672 | 14.5767 | 14.7862 | 14.9957 | 15.2052 | 15.4147 | 15.6242 | 15.8337 | 16.0432 | 16.2527 | 16.4622 | 16.6717 | 16.8812 | 17.0907 | 17.2992 | 17.5087 | 17.7182 | 17.9277 | 18.1372 | 18.3467 | 18.9100 |
| 15 | 15.1706 | 15.3844 | 15.5982 | 15.8120 | 16.0258 | 16.2396 | 16.4534 | 16.6672 | 16.8810 | 17.0948 | 17.3086 | 17.5224 | 17.7362 | 17.9500 | 18.1638 | 18.3776 | 18.5914 | 18.8052 | 19.0190 | 19.2328 | 19.4466 | 20.0100 |
| 16 | 16.1837 | 16.4018 | 16.6199 | 16.8380 | 17.0561 | 17.2742 | 17.4923 | 17.7104 | 17.9285 | 18.1466 | 18.3647 | 18.5828 | 18.8009 | 19.0190 | 19.2371 | 19.4552 | 19.6733 | 19.8914 | 20.1095 | 20.3276 | 20.5457 | 21.1100 |
| 17 | 17.1970 | 17.4204 | 17.6438 | 17.8672 | 18.0906 | 18.3140 | 18.5374 | 18.7608 | 18.9842 | 19.2076 | 19.4310 | 19.6544 | 19.8778 | 20.1012 | 20.3246 | 20.5480 | 20.7714 | 20.9948 | 21.2182 | 21.4416 | 21.6650 | 22.2300 |
| 18 | 18.2105 | 18.4482 | 18.6859 | 18.9236 | 19.1613 | 19.3990 | 19.6367 | 19.8744 | 20.1121 | 20.3498 | 20.5875 | 20.8252 | 21.0629 | 21.3006 | 21.5383 | 21.7760 | 22.0137 | 22.2514 | 22.4891 | 22.7268 | 22.9645 | 23.5300 |
| 19 | 19.2242 | 19.4762 | 19.7282 | 19.9802 | 20.2322 | 20.4842 | 20.7362 | 20.9882 | 21.2402 | 21.4922 | 21.7442 | 21.9962 | 22.2482 | 22.5002 | 22.7522 | 23.0042 | 23.2562 | 23.5082 | 23.7602 | 24.0122 | 24.2642 | 24.8300 |
| 20 | 20.2382 | 20.5044 | 20.7706 | 21.0368 | 21.3030 | 21.5692 | 21.8354 | 22.1016 | 22.3678 | 22.6340 | 22.9002 | 23.1664 | 23.4326 | 23.6988 | 23.9650 | 24.2312 | 24.4974 | 24.7636 | 25.0298 | 25.2960 | 25.5622 | 26.1300 |
| 25 | 25.4716 | 26.0506 | 26.6296 | 27.2086 | 27.7876 | 28.3666 | 28.9456 | 29.5246 | 30.1036 | 30.6826 | 31.2616 | 31.8406 | 32.4196 | 33.0000 | 33.5790 | 34.1580 | 34.7370 | 35.3160 | 35.8950 | 36.4740 | 37.0530 | 38.6300 |
| 30 | 30.5337 | 31.2182 | 31.9027 | 32.5872 | 33.2717 | 33.9562 | 34.6407 | 35.3252 | 36.0097 | 36.6942 | 37.3787 | 38.0632 | 38.7477 | 39.4322 | 40.1167 | 40.8012 | 41.4857 | 42.1702 | 42.8547 | 43.5392 | 44.2237 | 46.7600 |
| 40 | 40.3760 | 41.1650 | 41.9540 | 42.7430 | 43.5320 | 44.3210 | 45.1100 | 45.8990 | 46.6880 | 47.4770 | 48.2660 | 49.0550 | 49.8440 | 50.6330 | 51.4220 | 52.2110 | 53.0000 | 53.7890 | 54.5780 | 55.3670 | 56.1560 | 59.6000 |

This table shows the present value of an annuity due of \$1 at various interest rates (i) and time periods (n). It is used to calculate the present value of any series of equal payments made at the beginning of each compounding period.

Table 6: Premium Value of an Annuity Due of \$1

$$\frac{1}{\gamma} = \frac{1}{1 + \beta^2} \left[\gamma^2 \beta^2 + 1 \right] \gamma^2 \beta^2 + 1$$

[illegible]

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